

Fourth Edition

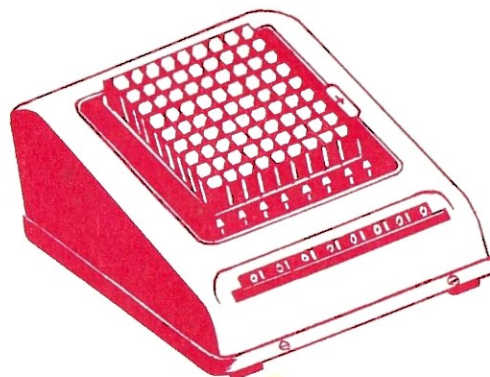
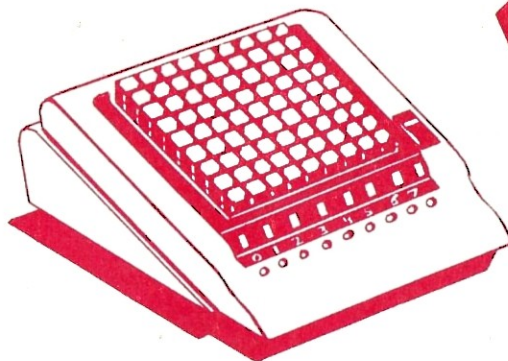
Agnew and Pasewark

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M65



Key - Driven Calculator Course



KEY-DRIVEN CALCULATOR COURSE

Fourth Edition

for the

Burroughs, Comptometer,
and
Plus Calculators

by

Peter L. Agnew

and

William R. Pasewark



PUBLISHED BY

SOUTH-WESTERN PUBLISHING COMPANY

CINCINNATI 27

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DALLAS 29

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M65

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FOREWORD

The key-driven calculator is used in offices throughout the country for rapid computing.

This course is based on an exhaustive study of the use of key-driven calculators in a wide variety of business offices. It includes the following features:

1. All fundamental processes are introduced in the first nine jobs and developed more extensively in later jobs.
2. An abundance of drill material is presented with a proper balance among the four fundamental processes. (Addition is most important; multiplication is second in importance; subtraction is third; and division is the least important process in operating the key-driven calculator.)
3. While emphasizing three- or four-column addition, the course also provides drill material in touch addition for columns up to eight digits wide.
4. The two-finger touch method is introduced in the first job and is carefully developed in subsequent jobs. Studies indicate that the two-finger touch method is the most effective technique.
5. Warm-up drills to be used during the first five minutes of each period are strongly recommended.
6. Emphasis throughout the course is on production. Each job includes a timed drill and there are ten speed drills. The highest degree of efficiency usually results when students are constantly pushing ahead for speed and then pulling back for accuracy.
7. The types of businesses referred to in the course are common to all parts of the country.
8. Many business forms frequently used with key-driven calculating machines are presented.
9. Calculating-machine operators are frequently required to work from handwritten material. This course includes a considerable amount of material in which handwritten figures, rather than printed figures, appear.
10. Teaching materials have been carefully planned for convenience in practice and in checking results.
11. All instructions and problems are equally applicable to the Burroughs, Comptometer, and Plus calculators.
12. The book is planned to be as self-instructional as possible. The instructions are presented in an easy-to-follow, step-by-step plan. Thus, the teacher is free to supervise class work and to give assistance where it is needed.
13. The spiral binding on the book makes it easy to handle while working at the calculator.
14. Problems may be removed when completed, but the instructional material and repetitive drills should remain in the book for future reference.
15. A well-planned testing program is provided. This course includes 60 jobs, 54 of which are bound in this book and 6 of which are provided separately for use as tests.
16. **Advanced Key-Driven Calculator Course** by Agnew and Brady has been developed to follow this elementary **Key-Driven Calculator Course**.

The authors appreciate the illustrations and personal assistance provided by representatives of machine manufacturers.

P. L. A.
W. R. P.

CONTENTS

Introduction.....	v
Illustrations of Calculators.....	vii

Job	Title	Page
-----	-------	------

Part 1

1	Touch Addition — Two Digit Numbers 1-5; One-Key Ascent and Descent.....	1
2	Touch Addition — Two-Key Ascent and Descent; Decimals.....	3
3	Touch Addition — Numbers 6-9.....	5
4	Touch Addition — Three-Digit Numbers; Zeros.....	9
5	Multiplication — One- and Two-Digit Factors; Decimals.....	13
6	Touch Addition — Three-Key Ascent and Descent.....	17
7	Subtraction.....	19
8	Touch Addition — Four-Key Ascent and Descent.....	23
9	Division — Trial-Divisor Method.....	25
10	Test Number One	

Part 2

11	Multiplication — Natural Fingering; Three- and Four-Digit Multiplicands.....	29
12	Multiplication — Reverse and Cross Hand Fingering.....	31
13	Speed Drill — Three-Column Addition....	33
14	Touch Addition — Four-Digit Numbers....	35
15	Multiplication — Interposed Fingering; Zeros.....	37
16	Subtraction — Zeros and Nines; Fewer Digits in Subtrahend.....	41
17	Speed Drill — Four-Column Addition.....	45

Job	Title	Page
18	Crossfootting.....	47
19	Division — Decimals in Quotient; Decimals in Dividend and Divisor; Nines in Divisor	51
20	Test Number Two	

Part 3

21	Multiplication — Fractions.....	53
22	Multiplication — Accumulation of Products	55
23	Speed Drill — Multiplication of Four-Digit Multiplicands.....	57
24	Multiplication — Fixed Decimal.....	59
25	Multiplication — Left-to-Right, Using a Fixed Decimal.....	63
26	Touch Addition — Five-Digit Numbers....	67
27	Speed Drill — Five-Column Addition....	69
28	Inventories — Pricing by C, M, and CWT..	71
29	Compound Multiplication.....	75
30	Test Number Three	

Part 4

31	Multiplication — Left-to-Right, Dropping off the Keyboard.....	79
32	Multiplication — Splitting the Key Factor..	81
33	Speed Drill — Four-Column Addition....	83
34	Percentage.....	85
35	Percentage of Increase and Decrease....	87
36	Touch Addition — Six-Digit Numbers....	89
37	Speed Drill — Five-Column Addition.....	91
38	Discounts.....	93
39	Chain Discounts.....	97
40	Test Number Four	

Job	Title	Page
-----	-------	------

Part 5

41	Inventories.....	99
42	Inventories — Turnover and Unit Cost....	103
43	Speed Drill — Multiplication of Four-Digit Factors with Decimals.....	107
44	Sales Distribution and Reports.....	109
45	Ledger Sheets.....	113
46	Touch Addition — Seven-Digit Numbers...	115
47	Speed Drill — Four-Column Addition Hand-written.....	119
48	Credit Balances.....	121
49	Division — Reciprocal Method.....	123
50	Test Number Five	

Part 6

51	Prorating.....	125
52	Reconciliation of Bank Statements.....	127
53	Speed Drill — Four-Column Addition....	129
54	Payroll.....	131
55	Payroll Summary.....	135
56	Touch Addition — Eight-Digit Numbers....	139
57	Speed Drill — Six-, Seven-, and Eight-Column Addition.....	141
58	Devising Tables of Numbers.....	143
59	Commissions.....	145
60	Test Number Six	
	Table of Decimal Reciprocals.....	149
	Table of Chain Discount Net Equivalents....	151
	Warm-Up and Speed Drill Records.....	152

INTRODUCTION

Key-Driven Calculators in Business

Addition, multiplication, subtraction, and division can be performed on key-driven calculators. However, addition and multiplication are the most frequently used arithmetic operations in business. Since the key-driven calculator is especially useful for narrow-column addition and multiplication, such problems are emphasized in this book.

Types of Key-Driven Calculators

The key-driven machines most frequently found in offices are the Burroughs, Comptometer, and Plus calculators. While these machines are not identical, they are so similar that a person who learns to operate one can easily operate the others.

On pages vii and viii you will find illustrations of most machine models. Instructions in this book will refer to your particular machine by name.

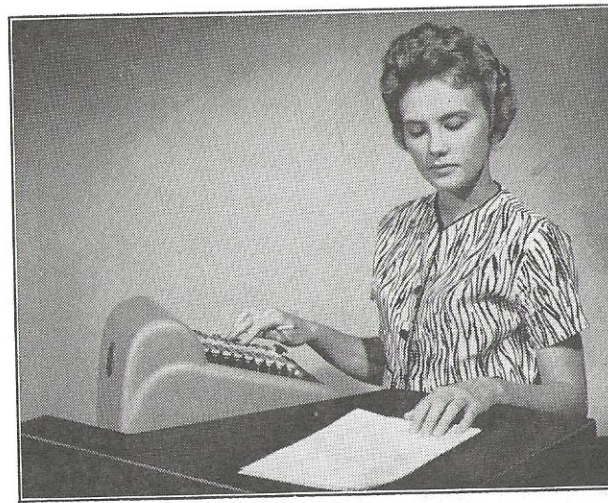
General Instructions

1. Preparation.

- If your machine is operated electrically, connect it to an electric outlet.
- Sit in a comfortable, erect position with your feet flat on the floor.
- Place this book on the desk in the same position as paper for writing a letter.
- Place the calculator to the right of the book.
- Your hand, wrist, and elbow should be parallel with a line from the \$9.00 key to the \$.01 key.

2. Clear the calculator dials.

Operate the lower dials clearing mechanism so that ciphers (0's, zeros) appear in all lower dials. (See pages vii and viii for location of machine parts.)



Correct Position at Calculator

- Manual calculators
 - Draw the clear lever forward as far as it will go.
 - Release the lever and allow it to return by its own force.
- Electric calculators
 - Burroughs Calculator: Depress the the clear bar or clear key.
 - Comptometer and Plus Calculators: Depress the clear bar or draw the clear lever forward.

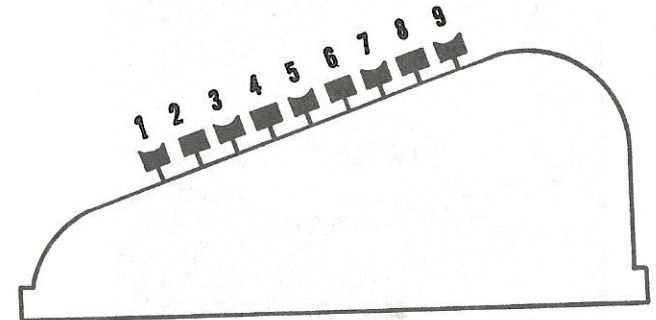
3. Strike keys using the touch method for addition.

- Hold a pencil in the right hand with the point away from the body and the thumb against the palm of the hand. The pencil is always held this way for touch addition because it enables the operator to write with a minimum of time and motion.
- Hold the right arm as in free-arm writing with the wrist straight.
- Curve the fingers.

- A **digit** is any one of the figures 1, 2, 3, 4, 5, 6, 7, 8, 9, and the symbol 0. A **number** is a combination of digits. In the number 254 — The figure at the extreme right, 4, is called the **units digit**. The second figure from the right, 5, is called the **tens digit**. The third figure from the right, 2, is called the **hundreds digit**.

254
↓ Units digit
↓ Tens digit
↓ Hundreds digit

- Strike each key separately. Use a rhythmic, bounce touch without pausing between strokes. Depress each key fully before releasing it.
- Keep your eyes on the written numbers. Do not look at the keyboard of the machine. Use the number 3 keys as a home row. Odd-numbered keys (1, 3, 5, etc.) are slightly concave and even-numbered keys (2, 4, 6, etc.) are flat so that they can be recognized by touch.



Odd-Numbered Keys Are Concave.
Even-Numbered Keys Are Flat.

- g. Read numbers as a whole unit instead of as individual digits. 254 should be read as "254," not as "2-5-4."
- h. Train your eyes to follow down the column unaided. Do not use a guide such as a ruler, blotter, or fingers of the left hand to assist in following the numbers, for this tends to hinder rapid reading.

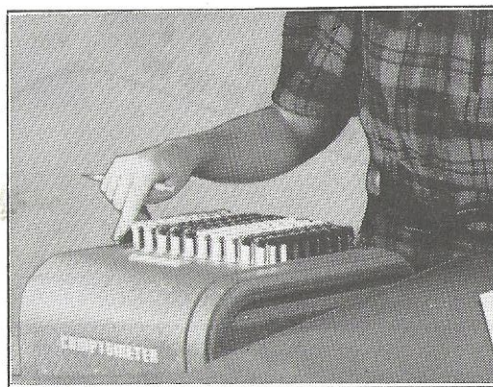
4. Errors.

If you strike a wrong key, clear the machine and start the problem again.

5. "Short stroke" of a key.

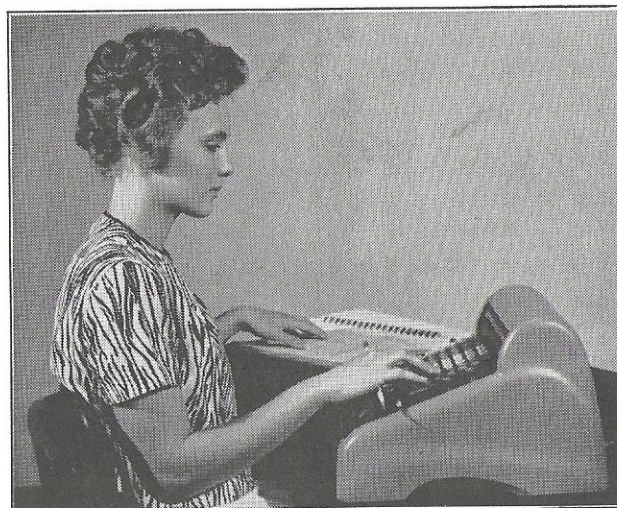
If you failed to depress fully any key on the—

- a. Burroughs Calculator: Clear the machine and start the problem again.
- b. Comptometer and Plus Calculator: The machine will lock when you attempt to strike the next number.
 - (1) Go back and again strike the last key operated.
 - (2) Depress the release key.
 - (3) Continue adding with the key that locked and signaled the short stroke.



Depressing the Release Key

(On some models the release key is between the lower dials and the subtraction control keys.)



Correct Position at Calculator

6. Decimal places in answer.

Unless otherwise indicated, record answers accurately to two decimal places. In some instances this means it will be necessary to solve the problem for three places to determine the accuracy of the second decimal place.

If the third decimal is 5 or more, increase the second decimal by one. If the third decimal is 4 or less, do **not** increase the second decimal.

7. Estimate the answer.

Inspect the problem and mentally approximate what the answer should be. If your machine answer does not seem reasonable, repeat the problem.

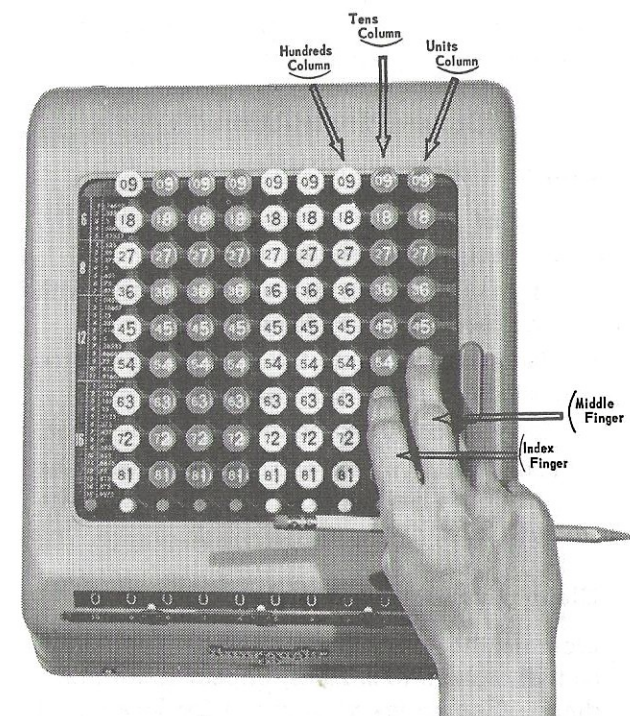
8. Record answers rapidly.

- a. Look at the answer in the dials and keep it in mind.
- b. Write the answer in the proper space.

9. Submit job to instructor.

When all problems of a job have been completed:

- a. If you have not already done so, write your name and other information in the space provided in the upper right corner of the first page of the job.
- b. Remove from this book the pages in the job.
- c. Attach the pages for the job at the upper left corner with a staple or clip.
- d. Give the completed job to the instructor.



Position of Fingers to Strike 34
When adding, strike keys individually.

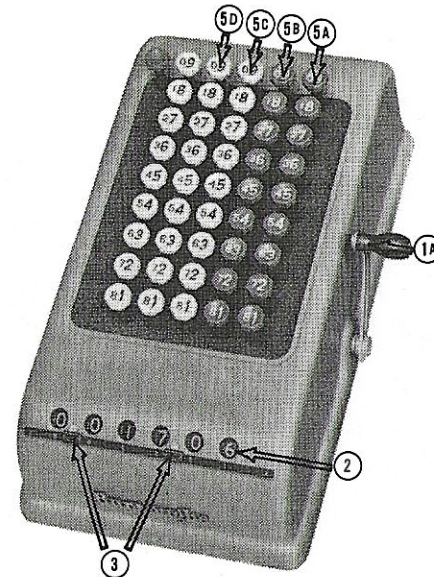
KEY-DRIVEN CALCULATORS

Calculator Parts

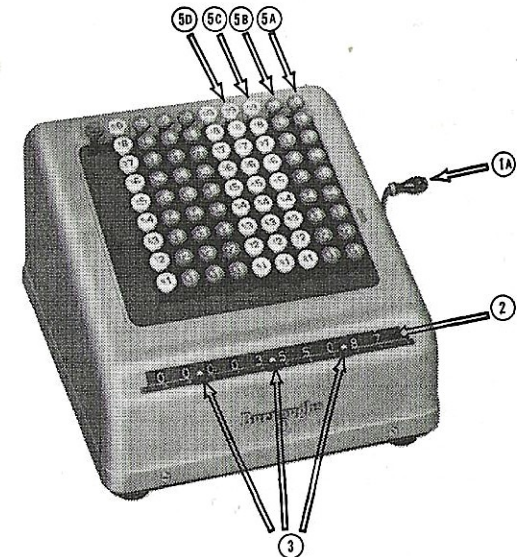
1. Lower dials clearing mechanism
 - A. Clear lever
 - B. Clear bar
 - C. Clear key
2. Lower dials
3. Decimal pointers
4. Subtraction control keys
5. Columns
 - A. Units
 - B. Tens
 - C. Hundreds
 - D. Thousands

Burroughs Duplex Calculator Only

6. Upper (rear) dials
7. Upper (rear) dials clear key
8. Lower (front)-to-upper (rear) dials transfer bar
9. Full-cent key
10. Decimal nontransfer key
11. Direct subtract bar

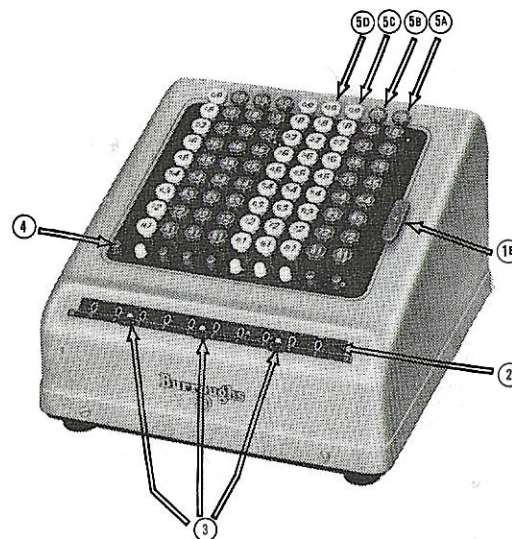


Manual
5-Column

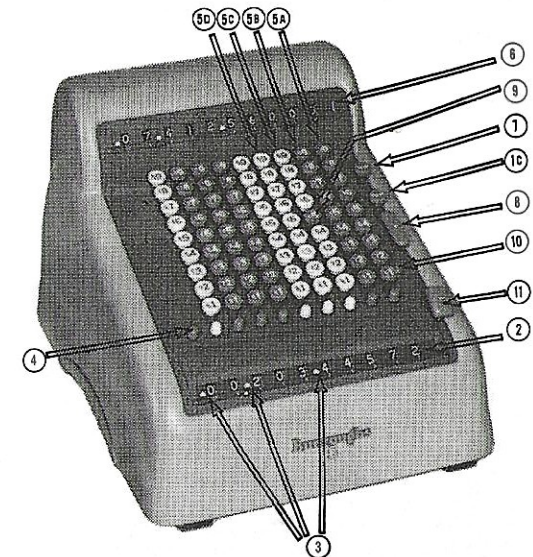


Manual
9-Column

BURROUGHS



Electric
9-Column



Electric
Duplex

BURROUGHS

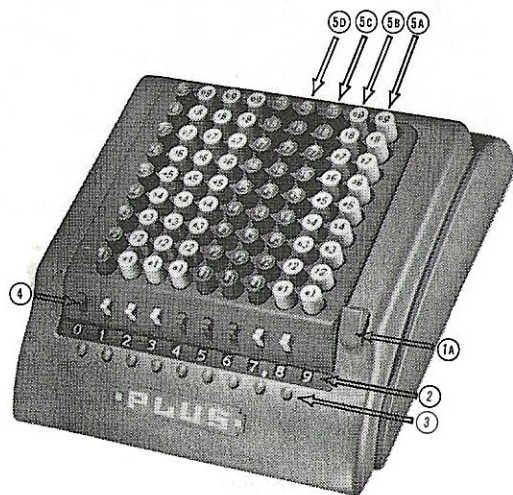
Calculator Parts

1. Lower dials clearing mechanism
 - A. Clear lever B. Clear bar
2. Lower dials
3. Decimal pointers
4. Subtraction control keys
5. Columns

A. Units	C. Hundreds
B. Tens	D. Thousands
6. Release key (On some models the release key is at the upper right of the keyboard.)
7. Touch control
8. Multiplication-division release key

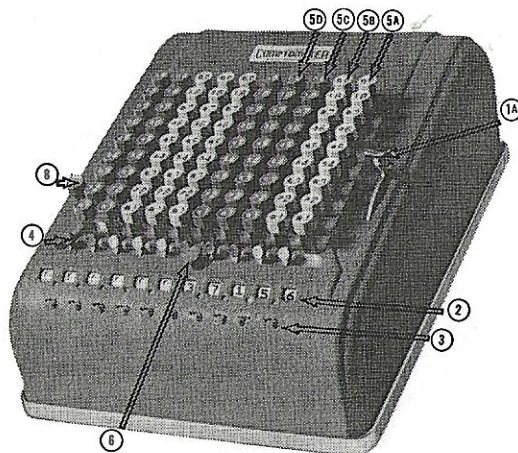
Plus Duplex Calculator Only

9. Clearing mechanism —
Move toward you to clear lower dials.
Move away from you to clear both lower and upper dials.
10. Transfer lever —
Move toward + sign to transfer amount from lower to upper dials.
Move toward - sign to subtract amount in lower dials from amount in upper dials.
11. Upper dials
12. Full-cent key
13. Decimal non transfer key

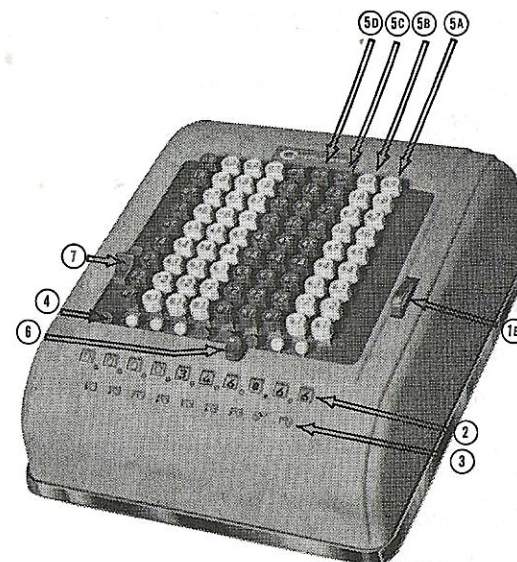


Manual

KEY-DRIVEN CALCULATORS

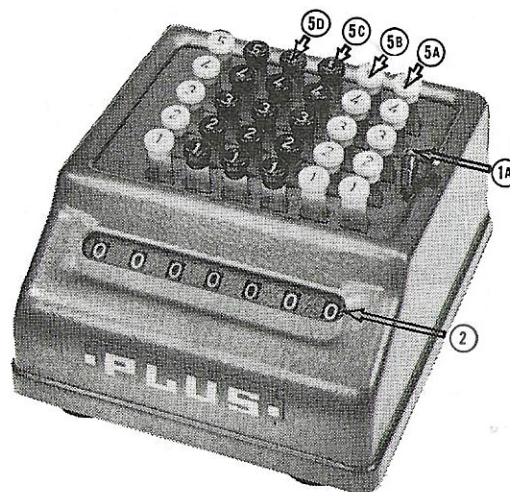


Manual



Electric

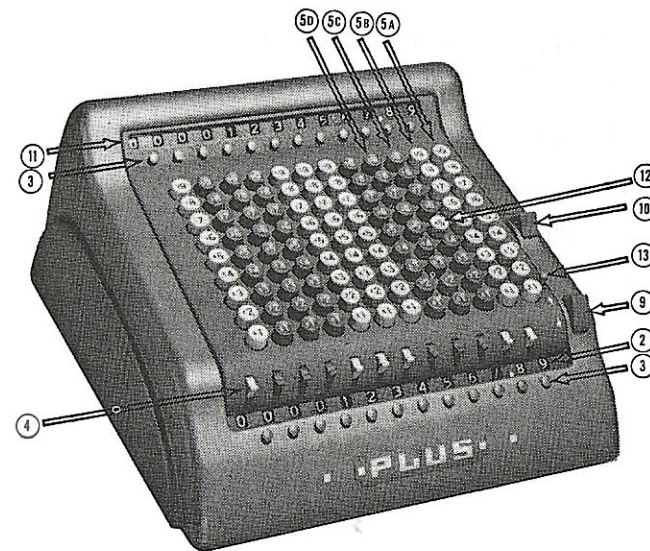
COMPTOMETER



Manual
Part-Keyboards

PLUS

(viii)



Electric
Duplex



TOUCH ADDITION

Two-Digit Numbers 1-5

One-Key Ascent and Descent

1. Clear the machine. All dials must register 0 before starting a problem.
2. Add the numbers in Problem (1). Start at the top of the column and proceed as follows:
 - a. Place the index finger on the 30 key, fully depress the key, and release it.
 - b. Then place the middle finger on the 3 key, fully depress the key, and release it.
 - c. **Do not depress both keys simultaneously.** In touch addition, keys are always struck individually with a rhythmic, bounce touch.
 - d. Continue down the column of figures striking the 30 and 3 keys using the touch method. Do not look at the keyboard of your calculator.
3. Record the answer directly below the problem.
4. Clear the calculator.
5. Do the problem a second time, adding the column of numbers upward.
 - a. If the second answer is the same as the first, write it in the space at the right of the page and proceed to the next problem.
 - b. If the second answer is not the same as the first, write the second answer directly below the first and do the problem again. Write the answer that proves to be correct at the right of the page and proceed to the next problem.
6. To add numbers in the other problems, follow the same procedure, reaching up for 4's and 5's and down for 2's and 1's. Keep your eyes on the written numbers. Do not look at the keyboard of the calculator.

JOB No. 1

TOUCH ADDITION

Name _____

Period _____

Date _____

No. of Errors _____

Rating _____

(1)	(2)	(3)	(4)	(5)	Answers
33	33	33	33	33	1
33	44	22	34	32	2
33	55	11	44	22	3
33	44	22	43	23	4
33	33	33	33	33	5
_____	_____	_____	_____	_____	6
_____	_____	_____	_____	_____	7
(6)	(7)	(8)	(9)	(10)	8
33	33	33	44	22	9
34	34	23	45	12	10
44	44	22	55	11	11
45	43	12	54	21	12
55	33	11	44	22	13
54	23	21	43	32	14
44	22	22	33	33	15
34	32	32	23	34	
_____	_____	_____	_____	_____	
(11)	(12)	(13)	(14)	(15)	
33	33	34	32	44	
23	34	44	22	45	
12	45	55	11	54	
23	54	54	12	43	
34	43	43	23	33	
45	32	34	22	23	
54	21	33	33	22	
43	23	32	34	12	
_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	

JOB No. 1 (Cont'd.)

(16)	(17)	(18)	(19)	(20)
33	33	34	34	12
22	22	33	44	23
22	23	22	45	33
12	22	11	55	34
11	11	11	55	34
12	12	12	44	44
22	11	22	33	45
33	22	23	22	55
34	11	33	33	55
44	12	34	34	44
45	22	44	44	34
55	23	45	45	45

Answers
16
17
18
19
20

Timed Drill

(1)	(2)	(3)	(4)	(5)
33	33	11	55	33
44	34	12	55	22
45	45	22	44	11
55	55	23	34	11
44	44	33	44	12
44	33	34	33	23
33	22	44	22	33
22	23	45	11	33
22	33	55	12	22
11	44	44	23	23
22	45	34	34	33
34	45	45	45	34

Timed Drill

1	
2	
3	
4	
5	

JOB No. 1 (Cont'd.)

Timed Drill

- Add the numbers in Timed Drill Problem (1) using the touch method. Write the answer in the space under the problem and immediately do Problem (2), then (3), then (4), and (5). Do Timed Drill Problem (1) a second time.
 - If the second answer for Problem (1) is the same as the first, write it in the space at the right of the page and proceed to Problem (2).
 - If the second answer for Problem (1) is not the same as the first, write the second answer directly below the first and do Problem (1) again. Write the answer that proves to be correct in the space at the right of the page and proceed to Problem (2).
- Do the Timed Drill Problems over and over again as many times as possible in five minutes. Place a check mark beside the answer in the space at the right of the page each time it proves to be correct.



TOUCH ADDITION

Two-Key Ascent and Descent

Decimals

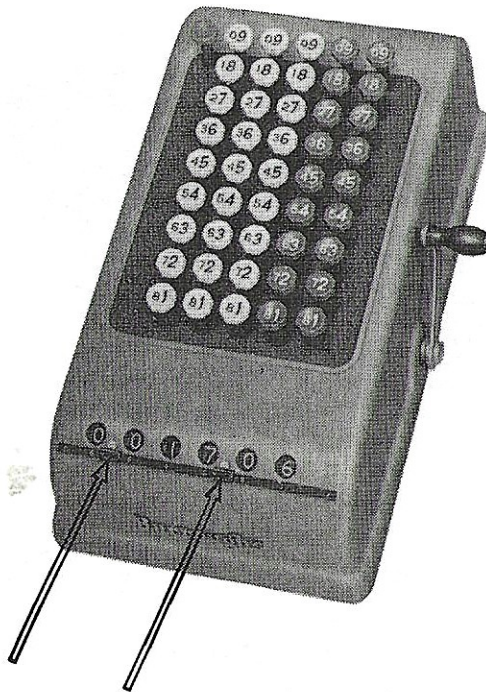
Follow the procedure outlined in Job No. 1 for completing problems and recording answers.

Two-Key Ascent and Descent

This job introduces two-key ascent and descent for the index and middle fingers.

Decimals

Place decimal pointers in the correct position **before** you start on each problem. In this job the decimal point is between the tens and hundreds columns (second and third columns from the right).



Burroughs

Decimal pointers are on a rod below the dials.

JOB No. 2

TOUCH ADDITION

Name _____

Period _____ Date _____

No. of Errors _____

Rating _____

(1)	(2)	(3)	(4)	(5)	Answers
.33	.11	.55	.13	.13	1
.53	.22	.43	.31	.31	2
.33	.24	.34	.24	.22	3
.13	.42	.42	.43	.23	4
.31	.34	.24	.34	.35	5
.13	.45	.42	.42	.54	6
.31	.53	.33	.23	.42	7
.22	.43	.35	.34	.21	8
.24	.32	.53	.45	.12	9
.42	.24	.34	.53	.13	10
.24	.22	.42	.35	.35	
.42	.21	.24	.53	.53	
(6)	(7)	(8)	(9)	(10)	
.53	.11	.12	.13	.42	
.35	.21	.21	.31	.24	
.44	.31	.13	.12	.44	
.22	.22	.31	.22	.21	
.11	.32	.12	.24	.13	
.33	.42	.23	.45	.31	
.55	.33	.24	.55	.22	
.33	.43	.42	.44	.24	
.11	.53	.23	.23	.42	
.13	.44	.35	.31	.23	
.31	.54	.53	.13	.33	
.11	.55	.33	.33	.24	

JOB No. 2 (Cont'd.)

(11)	(12)	(13)	(14)	(15)
.12	.13	.24	.43	.53
.24	.33	.33	.35	.24
.45	.21	.31	.42	.53
.53	.13	.12	.21	.31
.42	.45	.24	.22	.12
.21	.42	.44	.24	.23
.13	.31	.55	.45	.34
.33	.12	.33	.54	.45
.35	.24	.21	.42	.53
.43	.43	.13	.23	.32
.21	.33	.33	.32	.21
.11	.11	.22	.24	.13
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Answers

11	
12	
13	
14	
15	

Timed Drill

(1)	(2)	(3)	(4)	(5)
.33	.23	.12	.43	.53
.34	.12	.13	.42	.35
.35	.11	.31	.23	.54
.55	.33	.13	.34	.53
.54	.55	.34	.42	.33
.53	.53	.44	.24	.34
.33	.35	.55	.43	.32
.32	.54	.53	.32	.31
.31	.45	.35	.13	.13
.13	.53	.54	.35	.24
.35	.33	.35	.53	.35
.53	.31	.42	.33	.53
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Timed Drill

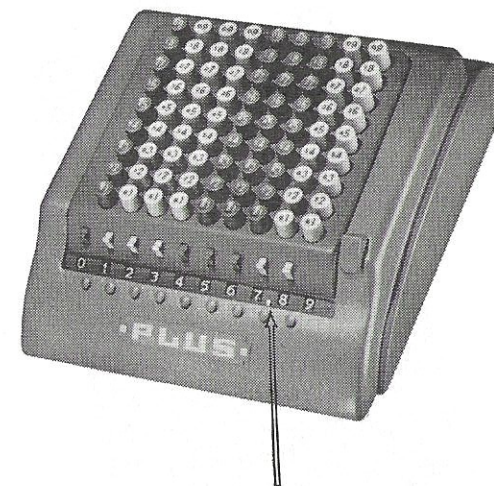
1	
2	
3	
4	
5	

JOB No. 2 (Cont'd.)



Comptometer

Decimal pointers are between dials.



Plus

Decimal pointers are between dials.

Timed Drill

Do Timed Drill Problems (1) to (5) in the usual manner, following the instructions on page 2.



TOUCH ADDITION

Numbers 6-9

Numbers 6-9

In touch addition only the keys from 1 to 5 are depressed.

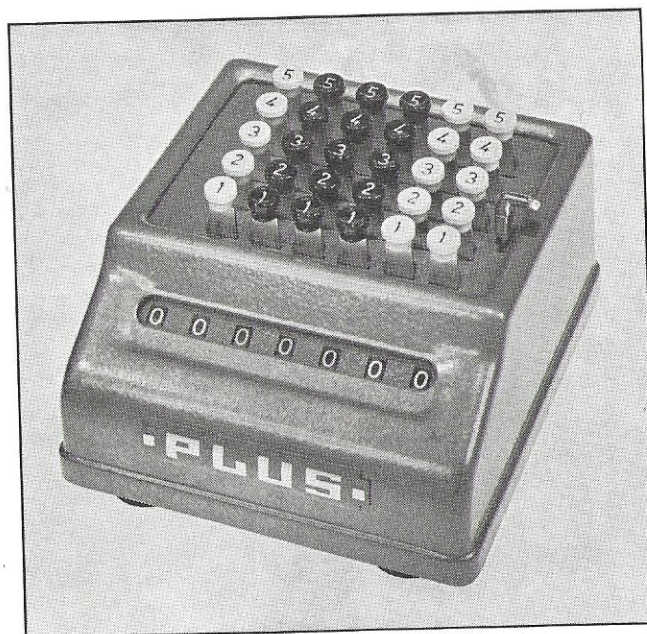
To add 6, 60, 600, 6,000, etc., strike the **3** key twice in the same column.

To add 7, 70, 700, 7,000, etc., strike the **4** key and then the **3** key in the same column.

To add 8, 80, 800, 8,000, etc., strike the **4** key twice in the same column.

To add 9, 90, 900, 9,000, etc., strike the **5** key and then the **4** key in the same column.

Combining keys for adding 6, 7, 8, and 9 avoids the long finger reaches that would occur if the entire keyboard were used.



Plus Part-Keyboard

JOB No. 3

TOUCH ADDITION

Name _____

Period _____ Date _____

No. of Errors _____

Rating _____

Numbers 6-9

6 Combination

(1)	(2)
.33	.66
.66	.36
.33	.33
.66	.63
.33	.66
.66	.36
.33	.33
.66	.63
.33	.66
.66	.36
.33	.33
.66	.63

7 Combination

(3)	(4)
.44	.44
.33	.77
.77	.47
.44	.74
.33	.44
.77	.77
.44	.47
.33	.74
.77	.44
.44	.77
.33	.47
.77	.74

6 and 7 Combination

(5)
.33
.36
.63
.37
.73
.66
.67
.76
.63
.73
.73
.37

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

8 Combination

(6)	(7)
.44	.88
.88	.48
.48	.44
.84	.84
.44	.88
.88	.48
.48	.44
.84	.84
.44	.88
.88	.48
.48	.44
.84	.84

6, 7, and 8 Combination

(8)
.66
.67
.76
.68
.86
.66
.67
.76
.68
.86
.78
.87

9 Combination

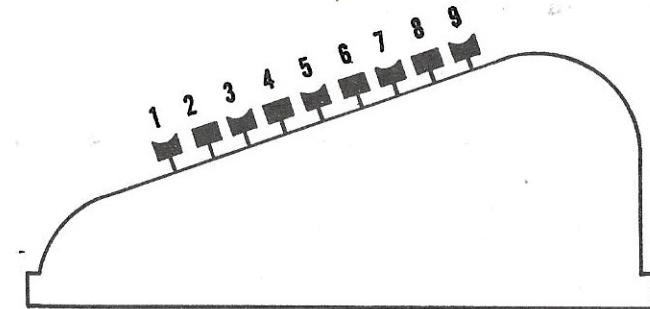
(9)	(10)
.55	.99
.99	.59
.59	.55
.95	.95
.55	.99
.99	.59
.59	.55
.95	.95
.55	.99
.99	.59
.59	.55
.95	.95

JOB No. 3 (Cont'd.)

Drill on All Combinations

(11)	(12)	(13)	(14)	(15)	Answers
.66	.67	.68	.83	.34	11
.67	.78	.86	.86	.73	12
.76	.89	.79	.26	.96	13
.88	.98	.97	.56	.43	14
.78	.87	.69	.72	.37	15
.87	.76	.96	.35	.74	16
.99	.67	.79	.45	.35	17
.89	.78	.97	.54	.82	18
.98	.89	.68	.94	.84	19
.88	.98	.86	.93	.46	20
.77	.87	.77	.83	.37	
.66	.76	.99	.67	.93	
(16)	(17)	(18)	(19)	(20)	
.38	.22	.36	.13	.13	
.42	.62	.42	.49	.48	
.39	.87	.95	.88	.27	
.65	.25	.36	.24	.68	
.87	.46	.24	.37	.39	
.49	.86	.28	.54	.35	
.88	.49	.45	.63	.33	
.28	.45	.74	.93	.11	
.28	.43	.75	.38	.24	
.31	.46	.53	.24	.47	
.64	.28	.74	.74	.93	
.99	.43	.32	.95	.12	

JOB No. 3 (Cont'd.)



Odd-numbered keys are concave.

Even-numbered keys are flat.

Petty Cash Fund Analysis

Most businesses have some transactions that involve small amounts of money for which it would not be practical to write checks.

These transactions are paid for from a petty cash fund. The payments are classified according to the type of expenditure. At the end of the accounting period the expenditures are totaled.

On the Petty Cash Fund Analysis form at the right, add each amount column and record the totals. Do the problem a second time, adding the column of numbers upward. Record answers in the usual manner.

PETTY CASH FUND ANALYSIS

Date	Postage	Messenger Service	Bus & Taxi	Collect Telegrams	Miscellaneous	
19-- Mar. 1	38				Ruler	25
2				65		
4			25			
5	82	95			Extension cord	72
6			25	75		
7			35			
8	26				Pencils	68
9	13	85		55		
11	67		65			
12					Donation	35
13						
14	86	75		75		
15			45		Ink	39
16					Magazine	35
18	58				Note Paper	35
19		55				
20		65	25	95	Nails	78
21	37					
22	42					
23		65		85	Pliers	94
25	35					
26	66				Window washing	95
27		85			Tape	75
28	24		55		Envelopes	53
29				85		
30		75				
Totals						

(21)

(22)

(23)

(24)

(25)

Answers

--	--	--	--	--

JOB No. 3 (Cont'd.)

Timed Drill

(1)	(2)	(3)	(4)	(5)
.34	.34	.12	.33	.21
.54	.42	.13	.12	.32
.83	.24	.16	.37	.44
.36	.47	.34	.89	.53
.24	.21	.37	.56	.49
.42	.12	.33	.34	.88
.35	.68	.67	.45	.77
.94	.37	.31	.49	.63
.45	.76	.13	.31	.34
.56	.13	.35	.13	.43
.66	.31	.59	.35	.31
.13	.13	.46	.59	.12

(6)	(7)	(8)	(9)	(10)
.76	.21	.27	.26	.39
.58	.34	.32	.44	.84
.69	.45	.17	.49	.73
.36	.97	.48	.73	.48
.22	.13	.88	.63	.38
.77	.75	.98	.12	.55
.92	.54	.44	.69	.46
.76	.62	.77	.34	.53
.97	.44	.57	.58	.24
.35	.67	.53	.39	.55
.44	.88	.79	.55	.45
.62	.75	.54	.64	.35

Timed Drill	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 3 (Cont'd.)

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. Place this book on the desk in the same position as paper for a penmanship lesson.
2. Place the calculator to the right of the book.
3. Curve the fingers.
4. In addition problems, strike the keys separately for each digit in the number.
5. Use a rhythmic, bounce touch.
6. Do not pause between strokes.
7. Be sure to depress each key fully and release it quickly.
8. Follow down the column of figures with your eyes; do not use a guide to keep your place.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.



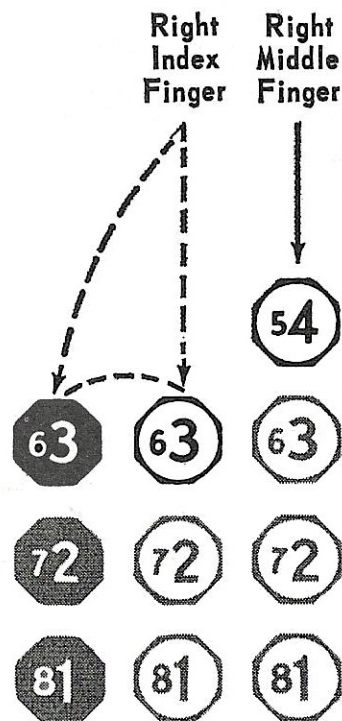
TOUCH ADDITION Three-Digit Numbers Zeros

Three-Digit Numbers

1. Begin at the left of the number.
2. Strike keys for the first and second digits using the index finger of the right hand.
3. Using the middle finger, strike the key for the third digit.
4. Strive for an even, rhythmic action.

To Complete Problem (1):

1. Strike 300 and 30 with the index finger of the right hand.
2. Strike 4 with the middle finger.
3. Before proceeding with Problem (1), strike 334 until an even, rhythmic action is achieved.



JOB No. 4

TOUCH ADDITION

Name _____

Period _____ Date _____

No. of Errors _____

Rating _____

Three-Digit Numbers

(1)	(2)	(3)	(4)	(5)
3.34	3.33	3.33	3.33	3.34
3.33	3.34	3.34	3.44	4.45
4.44	4.45	3.33	4.55	5.54
4.45	5.55	3.34	5.55	5.44
5.55	5.54	4.44	5.44	4.84
5.54	4.43	4.45	4.33	5.95
4.44	3.32	4.44	3.22	4.74
4.43	2.21	4.45	2.11	3.63
3.33	1.11	5.55	1.11	3.23
3.32	1.12	5.54	1.22	3.44
2.22	2.23	5.55	2.33	4.76
2.21	3.34	5.54	3.44	3.32
(6)	(7)	(8)	(9)	(10)
3.48	6.34	6.78	2.45	1.35
8.54	7.32	3.94	9.99	5.48
9.43	3.48	4.58	4.33	4.53
6.34	8.45	4.32	3.54	3.64
7.32	9.43	3.54	4.23	4.26
3.48	6.34	4.72	3.54	3.54
8.45	7.32	2.63	4.62	4.87
8.43	3.48	3.12	2.67	3.12
3.48	6.34	2.46	3.98	2.35
9.43	7.32	6.78	4.32	4.35
6.34	3.48	3.94	2.45	5.48
7.32	8.45	4.58	9.99	4.53

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 4 (Cont'd.)

Zeros

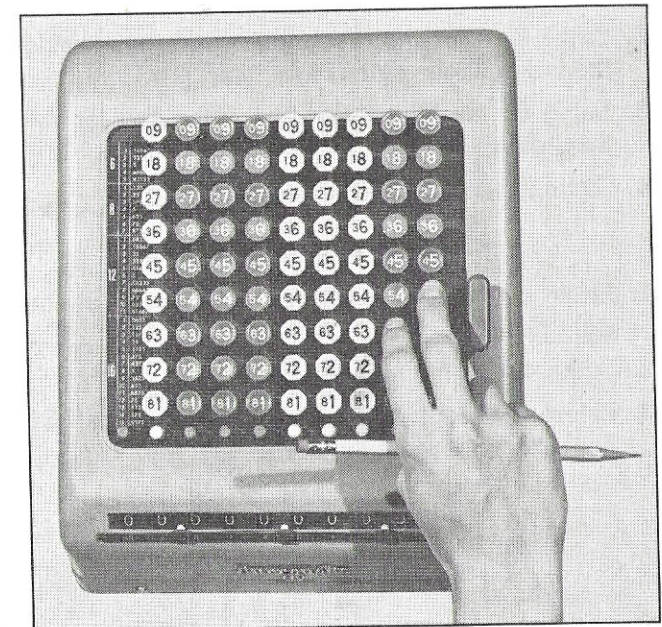
(11)	(12)	(13)	(14)	(15)	Answers
3.06	2.36	2.24	1.20	2.00	11
4.90	.20	3.00	2.04	.43	12
7.03	4.33	.67	.45	3.35	13
4.70	.31	3.21	.50	5.00	14
2.20	.10	1.20	4.03	9.07	15
2.06	3.43	.37	2.34	.35	16
3.70	2.02	3.23	.87	5.92	17
3.04	.36	3.04	3.04	.20	18
8.50	4.05	.40	4.08	4.80	19
3.00	.47	.24	.43	5.05	20
5.90	.42	4.73	.30	.49	
4.03	2.23	.30	5.09	.90	

(16)	(17)	(18)	(19)	(20)
7.09	5.40	4.57	2.49	7.63
3.30	3.84	6.30	.86	3.50
7.49	.70	.35	.42	5.53
.50	.64	.05	7.74	.97
7.69	.53	9.30	2.08	.93
8.50	.66	.54	.46	.82
2.34	.88	8.73	.29	7.22
.31	.40	3.42	.62	2.27
3.09	.07	.13	9.02	2.90
.50	3.48	.42	8.43	7.43
2.50	.08	2.30	8.30	.79
.71	.46	.92	.10	7.62

JOB No. 4 (Cont'd.)

Zeros

Do not strike a key in the column for which a zero appears.



Position of Fingers to Strike 34

When adding, strike each key individually.

JOB No. 4 (Cont'd.)

Sales Slips

A **sales slip** is used by retail merchants to record cash, C.O.D., and charge sales to customers. Amounts that customers pay on their accounts may also be recorded on the sales slip.

Sales slips are frequently totaled on a calculating machine.

In Problems (21) and (22), add the numbers in the Amount column and record the Total.

JOB No. 4 (Cont'd.)

(21)

OAKS PHARMACY 3723 42 Street				
TA 2-6481		Ames, Iowa		
Date <u>April 6</u>		19--		
Sold to <u>George Logan</u>				
Address <u>2815 47 Street</u>				
Sold by <u>dm</u>	Cash	COD	Charge <u>✓</u>	On Acct.
QUAN.	DESCRIPTION		AMOUNT	
1	<u>Al 25849</u>		4	32
1	<u>Hand Lotion</u>		1	73
1	<u>Facial Tissues</u>			27
1	<u>Toothpaste</u>			79
TOTAL				
No. 16818 Rec'd by _____				

(22)

OAKS PHARMACY 3723 42 Street				
TA 2-6481		Ames, Iowa		
Date <u>April 6</u>		19--		
Sold to <u>James Thompson</u>				
Address <u>3413 34 Street</u>				
Sold by <u>dm</u>	Cash	COD	Charge <u>✓</u>	On Acct.
QUAN.	DESCRIPTION		AMOUNT	
1	<u>Al 25850</u>		2	40
1	<u>Al 25851</u>		3	60
1	<u>Sun Lamp</u>		3	95
1	<u>Toothbrush</u>			69
TOTAL				
No. 16819 Rec'd by _____				

Answers (21)

(22)

JOB No. 4 (Cont'd.)

Timed Drill

(1)	(2)	(3)	(4)	(5)
4.40	3.37	.43	4.21	3.40
3.00	4.05	.60	1.31	5.43
2.02	.45	.75	7.33	7.08
1.10	.54	9.04	1.22	5.43
3.03	4.99	.45	2.20	.90
3.03	3.60	.58	7.34	3.20
4.00	.42	.40	.43	4.02
4.04	.23	4.77	6.06	3.80
5.50	.34	.68	3.45	4.90
5.05	3.03	.32	5.80	4.32
3.30	3.73	2.23	4.33	.60
3.03	5.50	1.35	3.05	7.00

(6)	(7)	(8)	(9)	(10)
.54	6.87	2.24	.44	6.83
.27	.05	9.77	.39	.35
.64	4.68	6.75	7.61	.65
5.70	2.17	7.09	.16	.43
9.02	.84	.95	.58	1.22
2.38	.89	8.38	6.84	.38
7.46	9.09	.85	.39	.74
.46	6.06	7.62	8.05	5.42
.22	.74	8.79	7.40	8.42
3.60	.36	.48	3.06	.21
.79	.39	.68	.63	3.97
3.78	.04	.02	.60	.65

Timed Drill

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 4 (Cont'd.)

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. Sit in a comfortable, erect position with your feet flat on the floor.
2. Hold the right arm as in free-arm writing with the wrist straight.
3. Keep your eyes on the written numbers. Do not look at the keyboard of the calculator.
4. Train your eyes to travel down the column of numbers unaided. Do not use a guide.
5. Record answers rapidly.
 - a. Look at the answer in the dials and keep it in mind.
 - b. Write the answer in the proper space.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.



MULTIPLICATION

One- and Two-Digit Factors Decimals

Two-Digit Multiplicand

One-Digit Multiplier

Multiplication on the calculating machine is accomplished by repeated addition. For example, if the multiplicand 58 is to be multiplied by the multiplier 3, 58 is added 3 times.

Machine Multiplication

- (1) 58 multiplicand (key factor)
- (2) $+58$
116
- (3) $+58$
174 product

Pencil and Paper Multiplication

58 multiplicand
 $\times 3$ multiplier
174 product

Another name for the multiplier and/or the multiplicand is "factor."

To do multiplication problems:

1. Clear the machine.
2. Look at the keyboard as you place the index finger of each hand over the keys that represent the multiplicand. The number held on the keyboard (the multiplicand) is called the **key factor**.
3. Strike the keys repeatedly, **simultaneously**, and rhythmically as many times as is indicated by the multiplier. Raise your fingers slightly from the keyboard after each stroke.

NOTE: On Comptometers with a Multiplication-Division Release Key, operate this key before starting multiplication. If a partial stroke is made, keep your fingers in position and complete the stroke of the partially struck keys.

JOB No. 5

MULTIPLICATION

Name _____

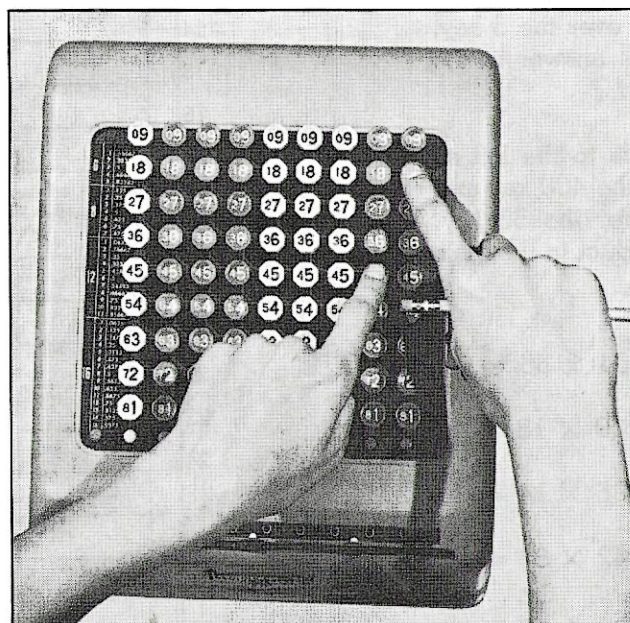
Period _____ Date _____

No. of Errors _____

Rating _____

Two-Digit Multiplicand

One-Digit Multiplier



Striking 58 in Multiplication

To Complete Problem (1):

1. Clear the machine.
2. Place your left index finger over the 50 key and your right index finger over the 8 key.
3. Depress the keys for 58, three times. The product in the dials is 174.

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

(1) $58 \times 3 =$ _____

(2) $68 \times 5 =$ _____

(3) $35 \times 9 =$ _____

(4) $15 \times 7 =$ _____

(5) $26 \times 4 =$ _____

(6) $73 \times 8 =$ _____

(7) $47 \times 4 =$ _____

(8) $62 \times 5 =$ _____

(9) $87 \times 7 =$ _____

(10) $29 \times 3 =$ _____

JOB No. 5 (Cont'd.)

Two-Digit Multiplicand

Two-Digit Multiplier

To Complete Problem (11):

1. Clear the machine.
2. Place your left index finger over the 40 key and your right index finger over the 5 key.
3. Depress 45, two times. The answer in the dials (90) is a partial product.
4. Do not clear the machine.
5. Move your fingers one place to the left so the left index finger is over the 400 key and the right index finger is over the 50 key. Multiply by 3. The final product in the dials is 1,440.

(11) $45 \times 32 =$ _____

(16) $64 \times 55 =$ _____

(12) $34 \times 85 =$ _____

(17) $19 \times 18 =$ _____

(13) $56 \times 34 =$ _____

(18) $35 \times 14 =$ _____

(14) $25 \times 46 =$ _____

(19) $42 \times 83 =$ _____

(15) $12 \times 63 =$ _____

(20) $61 \times 73 =$ _____

Decimals

(21) $.85 \times .24 =$ _____

(26) $.83 \times .44 =$ _____

(22) $.37 \times .25 =$ _____

(27) $.25 \times 6.3 =$ _____

(23) $69 \times 2.8 =$ _____

(28) $.46 \times 7.3 =$ _____

(24) $.34 \times 18 =$ _____

(29) $.18 \times 4.5 =$ _____

(25) $21 \times .68 =$ _____

(30) $4.2 \times 3.8 =$ _____

JOB No. 5 (Cont'd.)

Two-Digit Multiplicand

Two-Digit Multiplier

Either factor may be multiplied by the other factor and the same answer will be secured in each case. For example,

$$45 \times 32 = 1,440, \text{ which is the same as } 32 \times 45 = 1,440.$$

It is recommended, however, that you choose as the key factor the factor which

1. Requires the least number of key depressions:
 - a. Holding 45 requires 5 depressions (3 + 2).
 - b. Holding 32 requires 9 depressions (5 + 4).
2. Is easier to hold.

To Complete Problems (11) to (20):

1. Clear the machine.
2. Place the index finger of each hand over the keys that represent the multiplicand.
3. Strike the keys repeatedly, **simultaneously**, and rhythmically as many times as is indicated by the units digit in the multiplier (digit at the right of the multiplier).
4. Move fingers that are over the keys for the multiplicand one place to the left and strike keys as many times as is indicated by the tens digit in the multiplier (second digit from the right in the multiplier).

Decimals

Before starting a problem containing decimals, always place the decimal pointer in position.

As in pencil and paper multiplication, determine the total number of decimal places in the multiplicand and the multiplier. That number of places is then pointed off in the product.

In Problem (21) there are two decimal places in the multiplicand (.85) and two decimal places in the multiplier (.24). Therefore, four decimal places should be pointed off in the product.

Answers

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

JOB No. 5 (Cont'd.)

Daily Cash Report

At the end of the day, salespersons remove the money from their cash registers and record the amounts on a Daily Cash Report.

To Complete Problem (31):

1. Check the extensions in the Amount column by multiplying the Number of Pieces by the value of the money.
2. Add the Amount column to determine if the Total Cash is correct.
3. Add Total Cash and amount of Bank Checks to determine if the Grand Total is correct.
4. If there are any errors on the Daily Cash Report, make the corrections on the Report.

To Complete Problems (32) to (36):

1. Multiply the Number of Pieces by the value of the money and record each answer in the Amount column. Add the Amount column and record Total Cash.
2. Add Total Cash and amount of Bank Checks and record the Grand Total.

JOB No. 5 (Cont'd.)

DAILY CASH REPORT		
SALESPERSON'S NO. <u>16</u>		DEPT. NO. <u>6</u>
REG. NO. AND DRAWER <u>31-A</u>		DATE <u>3/24</u>
	NUMBER OF PIECES	AMOUNT
HALVES	7	3 50
QUARTERS	19	4 75
DIMES	65	2 75
NICKELS	62	3 10
PENNIES	37	37
PAPER MONEY		9 00
TOTAL CASH		23 47
BANK CHECKS		8 43
GRAND TOTAL		31 90

(31)

Name _____

DAILY CASH REPORT		
SALESPERSON'S NO. <u>17</u>		DEPT. NO. <u>6</u>
REG. NO. AND DRAWER <u>31-B</u>		DATE <u>3/24</u>
	NUMBER OF PIECES	AMOUNT
HALVES	18	
QUARTERS	38	
DIMES	83	
NICKELS	41	
PENNIES	38	
PAPER MONEY		7 00
TOTAL CASH		
BANK CHECKS		6 43
GRAND TOTAL		

(32)

DAILY CASH REPORT		
SALESPERSON'S NO. <u>21</u>		DEPT. NO. <u>6</u>
REG. NO. AND DRAWER <u>31-C</u>		DATE <u>3/24</u>
	NUMBER OF PIECES	AMOUNT
HALVES	12	
QUARTERS	30	
DIMES	16	
NICKELS	61	
PENNIES	84	
PAPER MONEY		9 00
TOTAL CASH		
BANK CHECKS		4 20
GRAND TOTAL		

(33)

DAILY CASH REPORT		
SALESPERSON'S NO. <u>20</u>		DEPT. NO. <u>6</u>
REG. NO. AND DRAWER <u>31-D</u>		DATE <u>3/24</u>
	NUMBER OF PIECES	AMOUNT
HALVES	15	
QUARTERS	27	
DIMES	34	
NICKELS	52	
PENNIES	20	
PAPER MONEY		5 00
TOTAL CASH		
BANK CHECKS		3 68
GRAND TOTAL		

(34)

JOB No. 5 (Cont'd.)

DAILY CASH REPORT		
SALESPERSON'S NO. <u>12</u>		DEPT. NO. <u>7</u>
REG. NO. AND DRAWER <u>32-A</u>		DATE <u>3/24</u>
	NUMBER OF PIECES	AMOUNT
HALVES	<u>13</u>	
QUARTERS	<u>27</u>	
DIMES	<u>92</u>	
NICKELS	<u>33</u>	
PENNIES	<u>61</u>	
PAPER MONEY		<u>9 00</u>
TOTAL CASH		
BANK CHECKS		<u>8 21</u>
GRAND TOTAL		

(35)

Timed Drill

- | | |
|------------------------------|------------------------------|
| (1) $47 \times 5 =$ _____ | (6) $.67 \times .23 =$ _____ |
| (2) $82 \times 9 =$ _____ | (7) $.27 \times 48 =$ _____ |
| (3) $45 \times 33 =$ _____ | (8) $63 \times 26 =$ _____ |
| (4) $86 \times .44 =$ _____ | (9) $93 \times 8.4 =$ _____ |
| (5) $.35 \times 2.4 =$ _____ | (10) $.77 \times 54 =$ _____ |

(16)

JOB No. 5 (Cont'd.)

DAILY CASH REPORT		
SALESPERSON'S NO. <u>8</u>		DEPT. NO. <u>7</u>
REG. NO. AND DRAWER <u>32-B</u>		DATE <u>3/24</u>
	NUMBER OF PIECES	AMOUNT
HALVES	<u>9</u>	
QUARTERS	<u>16</u>	
DIMES	<u>38</u>	
NICKELS	<u>94</u>	
PENNIES	<u>38</u>	
PAPER MONEY		<u>8 00</u>
TOTAL CASH		
BANK CHECKS		<u>6 42</u>
GRAND TOTAL		

(36)

Timed Drill

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

(16)



TOUCH ADDITION

Three-Key Ascent and Descent

Warm-Up Drill

Before starting the regular work of this job, complete Warm-Up Drill A which is explained below.

Warm-Up Drill A

Regular practice on fundamental arithmetical operations is vitally important for efficient operation of the key-driven calculator. Beginning with this job you will spend the first five minutes of each period practicing on a Warm-Up Drill.

The six addition problems in Warm-Up Drill A on page 18 contain 40 strokes each. Before starting the regular work of the job, complete these problems as often as possible in the time allotted.

Keep a record of the number of times you do each problem and multiply by 40 to compute the number of strokes. Record the number of strokes:

1. On the job sheet at the place indicated, and
2. On the Warm-Up Drill Record, page 152.

Three-Key Ascent and Descent

1. Problems in this job emphasize reaches that span two keys. A three-key ascent occurs at the beginning of Problem (1) when .55 must be struck after .22 has been entered in the dials. A three-key descent follows when .11 is struck after .44 has been recorded.

2. In doing these problems follow all the basic principles of touch addition.

JOB No. 6

TOUCH ADDITION

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

Three-Key Ascent and Descent

(1)	(2)	(3)	(4)	(5)
.22	.22	.14	.22	.22
.55	.25	.25	.55	.25
.44	.52	.52	.99	.29
.11	.11	.41	.11	.41
.22	.14	.14	.22	.14
.55	.41	.25	.55	.18
.44	.22	.52	.99	.22
.11	.25	.41	.11	.25
.22	.52	.14	.22	.29
.55	.11	.25	.55	.21
.44	.14	.52	.99	.14
.11	.41	.41	.11	.18
_____	_____	_____	_____	_____

(6)	(7)	(8)	(9)	(10)
.22	.22	4.35	.61	1.23
.52	.25	8.62	.25	.45
.92	.29	.53	5.48	.96
.11	.52	2.01	7.04	3.02
.41	.92	.49	.14	1.14
.81	.11	.33	3.49	.25
.22	.14	6.42	.52	5.93
.52	.18	.28	.20	.73
.92	.41	5.92	3.81	.48
.11	.81	.13	.26	4.32
.41	.22	7.08	.93	.13
.81	.25	.14	2.21	.22
_____	_____	_____	_____	_____

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 6 (Cont'd.)

(11)	(12)	(13)	(14)	(15)
23	113	41	835	41
42	25	210	525	49
583	307	37	224	325
12	49	14	160	81
41	14	93	25	450
22	52	325	83	23
206	831	46	12	31
614	40	703	261	805
47	63	19	42	941
49	593	25	302	25
52	681	214	54	35
370	432	453	13	41

Answers

11	
12	
13	
14	
15	

JOB No. 6 (Cont'd.)

Warm-Up Drill A

(1)	(2)	(3)
3.42	6.79	.24
.65	.54	9.31
5.93	4.71	.74
.21	.28	4.05
6.10	.46	9.34
.34	3.24	.76
8.67	8.55	3.37
7.86	5.72	.49
3.45	.13	8.57
5.71	.58	.54
2.03	7.22	7.26
.22	.13	2.02

Timed Drill

(1)	(2)	(3)	(4)	(5)
104	14	482	14	14
905	85	57	94	35
257	24	624	18	91
25	10	13	139	402
28	4	80	21	527
52	125	12	418	81
87	426	201	25	441
25	465	41	204	20
25	28	125	14	52
95	319	83	37	614
412	814	25	81	92
477	743	72	703	43

Timed Drill

1	
2	
3	
4	
5	

(4)	(5)	(6)
1.13	5.93	.24
.54	7.22	.97
3.60	1.01	6.02
.92	7.69	1.13
9.79	.82	7.52
8.07	2.34	.14
.22	6.31	3.62
6.35	4.25	2.70
.41	.90	8.35
2.34	.53	.83
7.55	3.31	4.71
8.90	7.24	6.22

Timed Drill

Do Timed Drill Problems (1) to (5) in the usual manner.



SUBTRACTION

Warm-Up Drill

Before starting this job, complete Warm-Up Drill A on page 18. Record the number of strokes in the upper right corner of this page and on the Warm-Up Drill Record, page 152.

Subtraction

Standard Calculator

(One set of answer dials. See next page for instructions on the Duplex Calculator.)

Addition is the only operation performed directly on the standard key-driven calculator. For subtraction, multiplication, and division, a variation of addition is used.

Each key has a large and a small number. The large numbers are used in adding and multiplying. The small numbers are machine complements of the large numbers and are used in subtracting and dividing. Note that the small numbers on the keys are consecutively arranged starting with the lowest figure (0) at the top of the columns and the highest figure (8) at the bottom of the columns.

To Complete Problems (1) to (30):

1. Using **large** numbers, add the minuend into the machine with the touch method.
2. Using **small** numbers, place the right index finger on the key for the first digit of the subtrahend.
 - a. **Calculators with Subtraction Control Keys:** Operate the subtraction control key immediately to the left of the column you are holding.
 - b. **Calculators without Subtraction Control Keys:** Depress four number 9 keys to the left of the column you are holding.

(Continued)

JOB No. 7
SUBTRACTION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

Problem (1)

Pencil and Paper Subtraction

$$\begin{array}{r} 587 \\ -263 \\ \hline 324 \end{array}$$

minuend →
subtrahend →
difference →

Machine

$$\begin{array}{r} 587 \\ +737 \text{ (small 262)} \\ \hline 1324 \end{array}$$

Standard Calculator

(One set of answer dials. See next page for instructions on the Duplex Calculator.)

To Complete Problem (1):

1. Using **large** numbers, add 587 into the machine with the touch method.
2. Place the right index finger on **small** 200.
 - a. **Calculators with Subtraction Control Keys:** Operate the subtraction control key immediately to the left of the column you are holding.
 - b. **Calculators Without Subtraction Control Keys:** Depress four number 9 keys to the left of the column you are holding.
3. Depress keys for **small** 262 (263 - 1). The answer is 324.
4. Prove the answer by adding **large** 263 to 324 in the answer dials. The result will be 587.

(1)	(2)	(3)	(4)	(5)
587	621	455	733	544
-263	-456	-224	-345	-454
_____	_____	_____	_____	_____

Answers

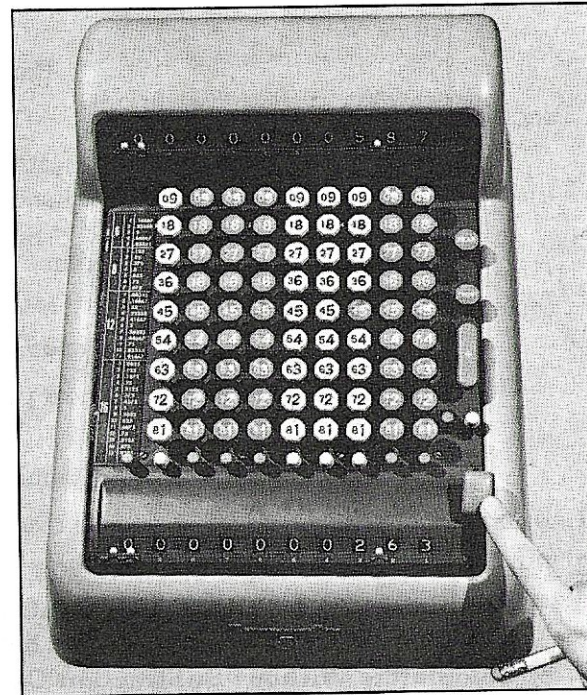
1	
2	
3	
4	
5	

JOB No. 7 (Cont'd.)

Duplex Calculator
(Two sets of answer dials)

To Complete Problem (1):

1. Using **large** numbers, add 587 into the lower dials by the touch method.
2. Operate the lower-to-upper dials transfer bar or lever. 587 will transfer to the upper dials.
3. Using **large** numbers, add 263 into the lower dials by the touch method.
4. Operate the direct subtract bar. 324 will appear in the upper dials.
5. Prove the answer by entering 263 in the lower dials. Operate the lower-to-upper dials transfer bar or lever which will add 263 to 324 in the upper dials. The result will be 587.



Duplex Calculator
Step 4

(6)	(7)	(8)	(9)	(10)
4.26	6.76	5.98	5.47	9.35
-2.74	-3.82	-4.27	-4.23	-7.62

Answers	
6	
7	
8	
9	
10	

JOB No. 7 (Cont'd.)

3. Depress keys for the subtrahend using **small** numbers **less one**.
4. Prove the answer by adding the subtrahend, with **large** numbers, to the difference. The result will be the minuend.

Duplex Calculator
(Two sets of answer dials)

To Complete Problems (1) to (30):

1. Using **large** numbers, add the minuend into the lower dials by the touch method.
2. Operate the lower-to-upper dials transfer bar or lever. The minuend will transfer to the upper dials.
3. Using **large** numbers, add the subtrahend into the lower dials by the touch method.
4. Operate the direct subtract bar. The difference will appear in the upper dials.
5. Prove the answer by entering the subtrahend in the lower dials. Operate the lower-to-upper dials transfer bar or lever, which will add the subtrahend to the difference in the upper dials. The result will be the minuend.

JOB No. 7 (Cont'd.)

To Complete Problem (11):

The subtrahend (1.71) ends with the number 1. 1.71 less 1 is 1.70. Notice that there is a **small** zero on your machine. You must therefore strike **small** 1-7-0.

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. Place this book on the desk in the same position as paper for a penmanship lesson.
2. Place the calculator to the right of the book.
3. Sit in a comfortable, erect position with your feet flat on the floor.
4. Hold a pencil in the right hand with the point away from the body and the thumb against the palm of the hand.
5. Hold the right arm as in free-arm writing with the wrist straight.

JOB No. 7 (Cont'd.)

Name _____

(11)	(12)	(13)	(14)	(15)
3.43 <u>-1.71</u> _____	4.52 <u>-2.28</u> _____	9.36 <u>-2.78</u> _____	2.14 <u>-1.78</u> _____	6.72 <u>-2.57</u> _____
(16)	(17)	(18)	(19)	(20)
4.35 <u>-2.38</u> _____	4.87 <u>-1.62</u> _____	7.21 <u>-2.68</u> _____	4.67 <u>-2.86</u> _____	7.83 <u>-3.68</u> _____
(21)	(22)	(23)	(24)	(25)
875 <u>-466</u> _____	459 <u>-288</u> _____	456 <u>-126</u> _____	765 <u>-421</u> _____	893 <u>-221</u> _____
(26)	(27)	(28)	(29)	(30)
429 <u>-287</u> _____	607 <u>-342</u> _____	275 <u>-164</u> _____	135 <u>-124</u> _____	129 <u>-121</u> _____

Answers

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

JOB No. 7 (Cont'd.)

Price	Color Group	Beginning Inventory	Ending Inventory	Total Goods Sold
\$5.95	White	225	215	_____
	Blue	127	114	_____
	Tan	39	35	_____
	Misc.	34	25	_____
\$4.50	White	450	432	_____
	Blue	262	255	_____
	Tan	89	72	_____
	Misc.	89	75	_____
\$3.50	White	230	216	_____
	Blue	135	135	_____
	Tan	50	48	_____
	Misc.	55	38	_____
	Total	_____	_____	_____

(43)

(44)

(45)

Answers

31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	

Timed Drill

(1)	(2)	(3)	(4)	(5)
4.56	8.55	3.89	5.94	4.76
<u>-3.22</u>	<u>-5.32</u>	<u>-2.36</u>	<u>-3.66</u>	<u>-3.12</u>
_____	_____	_____	_____	_____
(6)	(7)	(8)	(9)	(10)
9.36	8.46	6.38	4.73	4.90
<u>-5.87</u>	<u>-6.15</u>	<u>-5.22</u>	<u>-3.82</u>	<u>-1.24</u>
_____	_____	_____	_____	_____

Timed Drill

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 7 (Cont'd.)

Daily Inventory Record

Eastman Department Store keeps a record of their daily inventory in all departments in order to maintain accurate control of the stock. In the Men's Department, shirts are carried in three price ranges and in four color groups.

To Complete Problems (31) to (45):

1. For each color group in each price range, subtract the ending stock inventory from the beginning stock inventory.
2. Record your answer in the Total Goods Sold column.
3. Add the Beginning Inventory column.
4. Add the Ending Inventory column.
5. Add the Total Goods Sold column.
6. Subtract the Total Ending Inventory from the Total Beginning Inventory. The difference should equal the total of the Total Goods Sold column.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

TOUCH ADDITION

Four-Key Ascent and Descent

Warm-Up Drill

Before starting the regular work of this job, complete Warm-Up Drill B, which is explained below.

Warm-Up Drill B

Problems for Warm-Up Drill B are on page 24. Complete the drill as often as possible in five minutes.

There are 40 strokes in each problem. Compute the strokes and record your results in the usual manner.

Four-Key Ascent and Descent

1. The problems in this job emphasize reaches that span three keys. A four-key ascent occurs at the beginning of Problem (1) when 55 must be struck after 11 has been recorded. A four-key descent follows when 11 is struck after 55 has been recorded.
2. In doing these problems follow all the basic principles of touch addition.

JOB No. 8		Name _____		No. of Errors _____	
TOUCH ADDITION		Period _____ Date _____		Strokes in Warm-Up Drill _____	
				Rating _____	
(1)	(2)	(3)	(4)	(5)	Answers
.11	.15	.33	.33	.11	1
.55	.51	.24	.42	.13	2
.11	.15	.15	.51	.15	3
.55	.51	.24	.42	.55	4
.11	.15	.33	.33	.53	5
.55	.51	.24	.42	.51	6
.11	.15	.15	.51	.11	7
.55	.51	.24	.42	.13	8
.11	.15	.33	.33	.15	9
.55	.51	.24	.42	.55	10
.11	.15	.15	.51	.53	
.55	.51	.24	.42	.51	
(6)	(7)	(8)	(9)	(10)	
6.42	.19	1.51	.24	6.79	
2.15	1.31	.21	5.58	1.57	
.21	.15	1.24	.71	.41	
.54	.10	1.91	.15	1.51	
9.32	.36	.15	6.92	.09	
.51	5.11	5.42	.60	8.58	
6.21	7.02	.51	.51	.65	
.91	.15	1.13	1.43	1.05	
7.62	5.83	.51	5.51	9.17	
.51	.51	1.50	.72	5.51	
.52	1.24	.21	.11	.74	
5.42	.37	.15	1.15	.51	

JOB No. 8 (Cont'd.)

(11)	(12)	(13)	(14)	(15)
459	513	631	15	63
126	649	851	456	59
11	582	156	51	105
5	15	259	792	151
19	51	55	34	501
823	50	11	515	9
649	511	96	115	115
51	151	80	23	501
932	259	602	649	55
49	806	709	870	19
105	151	151	115	15
11	551	501	510	1
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Timed Drill

(1)	(2)	(3)	(4)	(5)
355	51	486	92	15
189	838	51	815	59
11	189	910	172	189
15	15	66	59	3
207	101	751	891	486
49	479	219	504	40
158	13	1	101	515
6	482	73	2	91
195	91	62	78	38
91	514	751	685	105
7	29	91	1	915
51	105	320	55	10
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Answers
11
12
13
14
15

JOB No. 8 (Cont'd.)

Warm-Up Drill B

(1)	(2)	(3)
.64	.60	6.62
.39	.79	.16
7.48	5.85	4.64
.57	.37	.06
1.12	.71	8.34
.02	4.98	.18
8.88	2.10	1.00
.61	2.39	.39
.58	2.90	7.10
7.03	5.29	9.02
4.41	.47	.67
<u>2.36</u>	<u>.84</u>	<u>6.91</u>

(4)	(5)	(6)
.50	.41	7.61
4.09	5.11	2.01
.14	7.09	.08
.83	3.88	.70
.23	.66	7.16
.62	.78	8.07
7.71	6.53	7.13
1.52	.33	.36
.99	.19	8.61
9.81	9.53	2.61
6.26	.45	.40
<u>2.27</u>	<u>.28</u>	<u>.92</u>



DIVISION

Trial-Divisor Method

Warm-Up Drill

Complete Warm-Up Drill B, page 24. Compute strokes and record results in the usual manner.

Division

To Complete Problems (1) to (20):

1. Using the **large** numbers on the keys, enter the dividend at the extreme left of the keyboard.
2. For each whole number in the divisor, move a decimal point one place to the **left** in the dividend.
3. Using the **small** numbers on the keys, place your fingers over the divisor, **less one**, at the extreme left of the keyboard. The keys you are holding are called the **divisor keys**.
4. **Equal Trial Divisor.**
The dial to the left of the columns in which you are holding the divisor is called the **trial-divisor dial**. Direct your attention to the number in the trial-divisor dial only.
 - a. If the trial-divisor dial is zero (0), omit this step and proceed directly to Step 5.
 - b. If there is a number in the trial-divisor dial, depress the divisor keys as many times as the number in the trial-divisor dial. If the trial-divisor number increases, continue to depress the divisor keys until the number of depressions equals (catches up to) the trial-divisor number. Proceed to Step 5.

(Continued)

JOB No. 9
DIVISION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

To Complete Problem (1):

1. Enter 918 at the extreme left of the keyboard, using the **large** numbers on the keys.
2. Move the decimal point between the 9 and the 1.
3. Place your fingers over the divisor keys, **small** numbers 26 (27 less 1).
4. **Equal Trial Divisor.**
The trial-divisor dial (dial to the left of the keys you are holding) reads 0. Omit this step and proceed to Step 5.
5. **Reduce Remainder.**
 - a. The dials directly below the divisor keys (the keys you are holding) read 91. Reduce 91 by depressing the divisor keys. The dials read 64.
 - b. Reduce 64. The remainder is 37.
 - c. Reduce 37. The remainder is 10. 10 is less than the divisor 27.
6. **Move Fingers.**
Move your fingers one place to the right.
7. **Equal Trial Divisor.**
The trial divisor is 1. Depress the divisor keys once. The trial divisor did not increase. The trial-divisor dial has been equaled.
8. **Reduce Remainder.**
The remainder (dials directly below the keys you are holding) is 81.
 - a. Reduce 81. The remainder is 54.
 - b. Reduce 54. The remainder is 27.
 - c. Reduce 27. The remainder is 00. The quotient (answer) is 34.
9. To prove your calculations, multiply 34 by 27. The product is 918.

Dividend	Divisor	Quotient	Dividend	Divisor	Quotient	Answers
(1) 918	÷ 27	= _____	(6) 1,440	÷ 45	= _____	1
(2) 4,945	÷ 23	= _____	(7) 9,576	÷ 84	= _____	2
(3) 8,946	÷ 42	= _____	(8) 7,590	÷ 345	= _____	3
(4) 7,735	÷ 35	= _____	(9) 97,464	÷ 744	= _____	4
(5) 7,888	÷ 34	= _____	(10) 8,246	÷ 266	= _____	5
						6
						7
						8
						9
						10

JOB No. 9 (Cont'd.)

To Complete Problem (11):

1. Enter 9,594 at the extreme left of the keyboard, using the **large** numbers on the keys.
2. Move a decimal so that 95.94 appears in the dials.
3. Place fingers over divisor keys, **small** 77 (78 less 1), at the extreme left of the keyboard.
4. Equal Trial Divisor.
The trial divisor is 0. Omit this step and proceed to Step 5.
5. Reduce Remainder.
The dials directly below the divisor keys read 95. Depress the divisor keys once. The remainder is 17. 17 is less than the divisor, 78.
6. Move Fingers.
Move your fingers one place to the right.
7. Equal Trial Divisor.
 - a. The trial divisor is 1. Depress the divisor keys once. The trial divisor increases to 2. The dials now read 120.14.
 - b. Depress divisor keys a second time. The trial divisor remains 2 and you have made two depressions.
The number of depressions (2) equals the trial divisor dial (2). The dials now read 122.34.
8. Reduce Remainder.
The divisor (78) is larger than the remainder (23). Omit this step.
9. Move Fingers.
Move your fingers one place to the right.
10. Equal Trial Divisor.
The trial divisor is 2. Depress the divisor keys twice. The trial divisor remains 2 and you have made two depressions. The number of depressions equals the trial-divisor dial. The dials now read 122.78.
11. Reduce Remainder.
The remainder is 78. The divisor is 78. Depress the divisor keys once. The remainder is 00. The quotient is 123.

Dividend	Divisor	Quotient	Dividend	Divisor	Quotient
(11) 9,594	÷ 78 =	_____	(16) 2,106	÷ 81 =	_____
(12) 5,814	÷ 51 =	_____	(17) 4,284	÷ 68 =	_____
(13) 1,824	÷ 24 =	_____	(18) 2,208	÷ 48 =	_____
(14) 2,448	÷ 34 =	_____	(19) 17,018	÷ 254 =	_____
(15) 2,144	÷ 67 =	_____	(20) 11,900	÷ 476 =	_____

Answers

11	_____
12	_____
13	_____
14	_____
15	_____
16	_____
17	_____
18	_____
19	_____
20	_____

JOB No. 9 (Cont'd.)

5. Reduce Remainder.

Direct your attention only to the dials directly below the divisor keys you are holding. The amount in these dials is the **remainder**.

- a. If the remainder is less than the divisor, proceed directly to Step 6.
- b. If the remainder is the same as or greater than the divisor, depress the divisor keys until the remainder is less than the divisor. Proceed to Step 6.

6. Move Fingers.

Move your fingers **one place to the right** and repeat Steps 4 and 5 until there is no remainder or until the quotient is accurate to two decimal places. (Quotients with decimals are introduced in Job 19.)

7. To prove your calculations, multiply the quotient (your answer) by the divisor. If your work is correct, the product should be the same as the dividend.

Summary of Steps for Division

1. **Equal** — the number in the trial-divisor dial.
2. **Reduce** — the number in the answer dials directly below the divisor keys being held until the number is less than the divisor keys being held.
3. **Move Fingers** — one place to the right.
Division may start with any of the three steps: Equal, Reduce, or Move Fingers.
If you cannot start with Step 1, Equal, proceed to Step 2 or to Step 3 and repeat the Steps in sequence until there is no remainder or until the quotient is accurate to two decimal places.

(Continued)

JOB No. 9 (Cont'd.)

Name _____

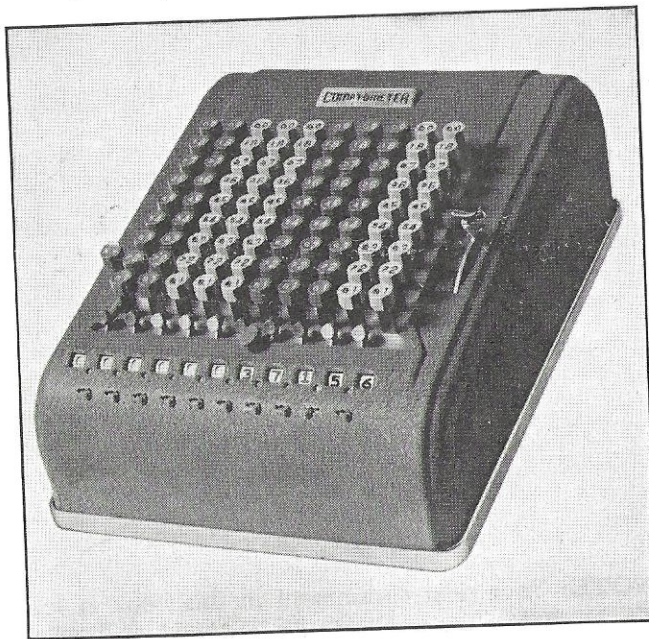
NOTE: On Comptometers with a Multiplication-Division Release Key, operate the key before starting division. If a partial stroke is made, keep your fingers in position and complete the stroke of the partially struck keys.

Averages

An **average** is the quotient obtained by dividing the total of a column of figures by the number of figures added.

To Complete Problems (21) to (30):

1. Add the 12 numbers in the problem and record the total.
2. Divide the total for each problem by 12 and record your answer as the average.



Ten-Column Comptometer

JOB No. 9 (Cont'd.)

(21)	(22)	(23)	(24)	(25)	Totals
10	425	449	41	95	21
668	19	686	14	195	22
8	183	207	532	243	23
998	820	689	33	175	24
517	36	401	272	27	25
805	570	865	88	64	26
73	408	146	108	975	27
240	43	54	446	750	28
9	728	20	483	89	29
6	15	746	76	2	30
889	827	40	67	121	
217	846	41	372	36	
Total					
Average					

(26)	(27)	(28)	(29)	(30)	Averages
845	751	533	809	626	21
917	924	211	274	81	22
459	327	332	873	103	23
770	565	992	606	706	24
305	694	660	624	259	25
556	717	647	94	865	26
195	125	488	608	124	27
745	774	630	947	338	28
728	206	612	603	29	29
443	107	891	498	960	30
598	989	988	129	72	
519	697	960	823	13	
Total					
Average					

JOB No. 9 (Cont'd.)

Department	Sales	Customers	Average Sale
A	\$1,120	56	_____
B	5,190	346	_____
C	7,602	543	_____
D	35,309	67	_____
E	5,670	135	_____
F	32,841	267	_____
G	7,504	56	_____
H	4,978	38	_____
I	35,912	268	_____
J	51,435	45	_____

Answers

31	_____
32	_____
33	_____
34	_____
35	_____
36	_____
37	_____
38	_____
39	_____
40	_____

Timed Drill

- | | |
|-------------------------------|-------------------------------|
| (1) $1,564 \div 68 =$ _____ | (6) $7,686 \div 122 =$ _____ |
| (2) $1,272 \div 53 =$ _____ | (7) $22,925 \div 655 =$ _____ |
| (3) $27,495 \div 65 =$ _____ | (8) $3,248 \div 58 =$ _____ |
| (4) $9,526 \div 433 =$ _____ | (9) $16,048 \div 34 =$ _____ |
| (5) $26,452 \div 778 =$ _____ | (10) $27,216 \div 36 =$ _____ |

Timed Drill

1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____
9	_____
10	_____

JOB No. 9 (Cont'd.)

In Problems (31) to (40), determine the average sale per customer in each department.

- For each department, divide the amount of sales by the number of customers.
- Record the quotient in the Average Sale column.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

NOTE: Your next assignment in this book is Job No. 11. Before proceeding with Job. No. 11, ask your instructor about Job No. 10, which is Test No. 1.



MULTIPLICATION

Natural Fingering

Three- and Four-Digit Multiplicands

Warm-Up Drill

Complete Warm-Up Drill A, page 18. Compute strokes and record results in the usual manner.

Natural Fingering

When your hands and arms are held in a normal position, your index and middle fingers of the right hand can easily hold two-digit numbers in which the right digit is higher on the keyboard than the left digit. (Examples: 46 and 34)

In a natural left-hand combination, the right digit is lower on the keyboard than the left digit. (Examples: 75 and 54)

Such combinations are called **natural** because of the ease with which they can be held. A general rule is to use the longest finger on the highest key on the keyboard. Use both hands in holding the multiplicand. Never use the thumbs.

Three-Digit Multiplicands

1. At the right of the keyboard, hold the key for the hundreds digit with the index finger of the left hand. Hold the keys for the tens and units digits with the index and middle fingers of the right hand.
2. Multiply as many times as the units digit of the multiplier indicates.
3. Move all fingers holding the multiplicand one place to the left.
4. Multiply by the tens position digit of the multiplier.
5. Move all fingers holding the multiplicand one place to the left.
6. Multiply by the hundreds position digit of the multiplier. The product (answer) now appears in the dials.

JOB No. 11
MULTIPLICATION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

Three-Digit Multiplicands

To Complete Problem (1):

1. Hold the 500 key with the left index finger. Hold the 40 key with the right index finger. Hold the 6 key with the right middle finger.
2. Multiply by 2. The answer dials read 1,092.
3. Move all fingers one place to the left.
4. Multiply by 3. The answer dials read 17,472.
5. Move all fingers one place to the left.
6. Multiply by 1. The answer dials read 72,072.

(1) $546 \times 132 =$ _____

(2) $734 \times 253 =$ _____

(3) $413 \times 757 =$ _____

(4) $212 \times 858 =$ _____

(5) $545 \times 423 =$ _____

(6) $412 \times 813 =$ _____

(7) $267 \times 612 =$ _____

(8) $157 \times 861 =$ _____

(9) $257 \times 213 =$ _____

(10) $713 \times 414 =$ _____

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 11 (Cont'd.)

Four-Digit Multiplicands

- (11) $7,557 \times 45 =$ _____ (16) $5,257 \times 63 =$ _____
 (12) $4,224 \times 83 =$ _____ (17) $8,668 \times 74 =$ _____
 (13) $5,225 \times 74 =$ _____ (18) $6,457 \times 86 =$ _____
 (14) $2,112 \times 36 =$ _____ (19) $7,546 \times 36 =$ _____
 (15) $6,424 \times 34 =$ _____ (20) $6,545 \times 52 =$ _____

Timed Drill

- (1) $768 \times 344 =$ _____ (6) $4,146 \times 34 =$ _____
 (2) $189 \times 512 =$ _____ (7) $8,723 \times 28 =$ _____
 (3) $245 \times 978 =$ _____ (8) $3,156 \times 39 =$ _____
 (4) $146 \times 213 =$ _____ (9) $6,546 \times 74 =$ _____
 (5) $612 \times 152 =$ _____ (10) $5,335 \times 85 =$ _____

Answers

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

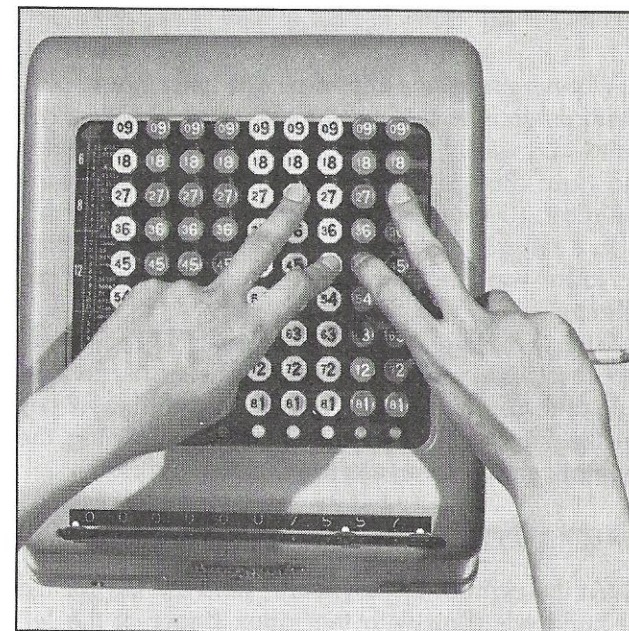
Timed Drill

1	
2	
3	
4	
5	
6	
7	
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9	
10	

JOB No. 11 (Cont'd.)

Four-Digit Multiplicands

Use the index and middle fingers of both hands and strike the keys simultaneously for four-digit multiplicands. Never use the thumbs.



Natural Fingering

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

12

MULTIPLICATION

Reverse and Cross Hand Fingering

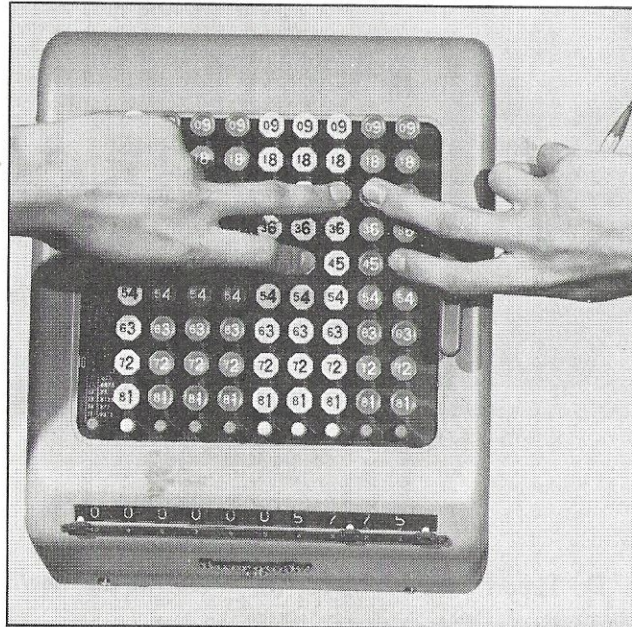
Warm-Up Drill

Complete Warm-Up Drill B, page 24. Compute strokes and record results in the usual manner.

Reverse Fingering

The illustration below shows that in holding 5,775, the higher keys are held with the longer fingers. Thus, it is necessary to turn the hands outward and raise the elbows slightly. Such combinations are called **reverse fingering**.

Multiplication problems should be practiced until they are performed with ease. When the correct method is used, you will soon acquire an easy, graceful style of operation.



Reverse Fingering

JOB No. 12

MULTIPLICATION

Name _____

Period _____

Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

Reverse Fingering

(1) $5,775 \times 53 =$ _____

(2) $2,475 \times 74 =$ _____

(3) $2,675 \times 87 =$ _____

(4) $6,731 \times 66 =$ _____

(5) $3,543 \times 85 =$ _____

(6) $6,754 \times 55 =$ _____

(7) $8,976 \times 36 =$ _____

(8) $3,531 \times 48 =$ _____

(9) $5,775 \times 154 =$ _____

(10) $2,332 \times 243 =$ _____

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	

Purchase Requisition

A purchase requisition is used by a department head or the chief stock clerk to request the purchasing agent to order certain items.

To Complete Problems (11) to (14):

1. Multiply Quantity by Price and record answer in Amount column.
2. Add amounts and record total at bottom of Amount column.

Purchase Requisition				No. 249
J. BACKMAN & COMPANY				
To the Purchasing Agent:			Date	March 24, 19--
Please order items listed below:			Wanted	April 30, 19--
QUANTITY	DESCRIPTION	PRICE	AMOUNT	
1,265	#348 Booklets	.12 each		(11)
2,354	#421 Booklets	.16 each		(12)
1,343	#639 Booklets	.19 each		(13)
Total				(14)
Suggested Vendor:			Requisitioned by: _____	
J. M. White & Co. 912 Quincy Avenue Houston, Texas			Approved by: _____	

JOB No. 12 (Cont'd.)

Cross Hand Fingering

- | | |
|--------------------------------|---------------------------------|
| (15) $1,397 \times 38 =$ _____ | (22) $1,375 \times 57 =$ _____ |
| (16) $2,498 \times 53 =$ _____ | (23) $6,843 \times 29 =$ _____ |
| (17) $2,386 \times 67 =$ _____ | (24) $1,398 \times 41 =$ _____ |
| (18) $1,386 \times 42 =$ _____ | (25) $7,831 \times 312 =$ _____ |
| (19) $3,586 \times 53 =$ _____ | (26) $2,486 \times 229 =$ _____ |
| (20) $1,265 \times 13 =$ _____ | (27) $3,598 \times 266 =$ _____ |
| (21) $3,476 \times 71 =$ _____ | (28) $4,587 \times 668 =$ _____ |

Timed Drill

- | | |
|--------------------------------|---------------------------------|
| (1) $6,886 \times 36 =$ _____ | (6) $1,397 \times 86 =$ _____ |
| (2) $2,564 \times 41 =$ _____ | (7) $7,821 \times 57 =$ _____ |
| (3) $1,375 \times 29 =$ _____ | (8) $1,386 \times 41 =$ _____ |
| (4) $2,442 \times 75 =$ _____ | (9) $6,831 \times 77 =$ _____ |
| (5) $6,864 \times 283 =$ _____ | (10) $5,732 \times 212 =$ _____ |

15
16
17
18
19
20
21
22
23
24
25
26
27
28

Timed Drill

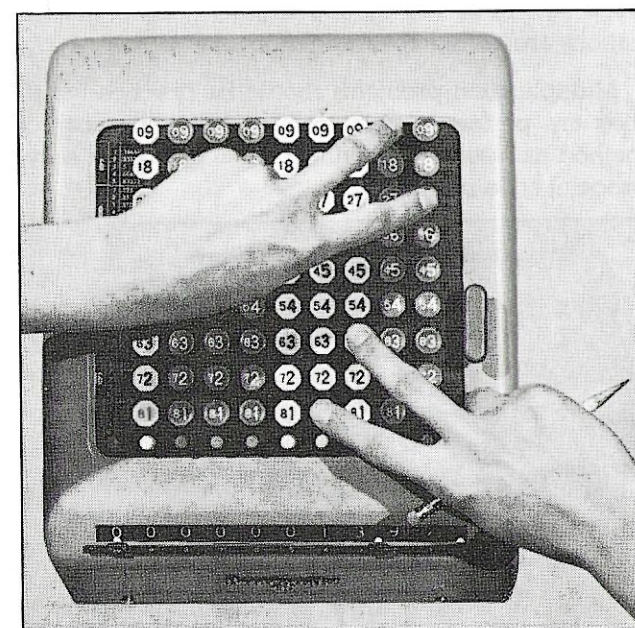
1
2
3
4
5
6
7
8
9
10

JOB No. 12 (Cont'd.)

Cross Hand Fingering

Reverse combinations can sometimes be avoided by crossing the hands as shown in the illustration below.

In holding 1,397, the higher keys are held with the longer fingers. The index finger and the middle finger of the right hand hold the 1 and the 3, and the middle finger and the index finger of the left hand hold the 9 and the 7.



Cross Hand Fingering

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

**SPEED DRILL****Three-Column Addition**

The Speed Drills in this book are designed to help you increase your speed and accuracy in operating the key-driven calculator.

This drill contains 15 problems of 40 strokes each, a total of 600 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

1. Complete each problem once, writing the answer in the space directly below the problem.
2. Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - a. If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - b. If the second answer is not the same as the first, write the second answer directly below the first answer.
3. Record, in the Time Record at the right, the time that was required to complete the drill.
4. Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
5. When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 13
SPEED DRILL

Name _____

Period _____ Date _____

No. of Errors _____

Rating _____

(1)	(2)	(3)	(4)	(5)
9.70	.87	8.26	.96	.50
.47	3.44	7.39	7.65	.99
.88	2.83	1.43	.01	7.78
.35	2.12	8.10	.90	7.90
5.30	6.15	.83	9.94	.86
4.68	.76	1.44	1.41	.95
2.20	.28	.45	7.00	4.07
.42	.83	8.74	.59	8.03
7.63	7.82	.68	9.85	.02
1.77	.23	.93	.75	1.01
3.55	5.53	.25	.80	1.98
3.22	.43	.15	9.29	4.62
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
(6)	(7)	(8)	(9)	(10)
6.77	.26	9.01	.09	.69
.27	.41	.02	6.80	.19
1.30	.49	7.02	9.73	.50
8.80	.73	4.00	5.48	.28
1.00	8.63	.21	5.08	.98
.53	3.12	7.59	.55	8.02
.04	.69	6.30	.16	.42
6.12	.12	5.56	8.19	1.58
3.67	5.58	.98	.24	4.81
8.82	9.39	9.26	5.55	9.54
.93	3.50	9.48	6.45	9.44
1.82	1.64	3.26	7.05	2.85
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Answers	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 13 (Cont'd.)

JOB No. 13 (Cont'd.)

(11)	(12)	(13)	(14)	(15)	Answers
1.55	9.20	.55	6.66	.14	11
4.82	.89	.81	.77	.48	12
8.54	.71	7.62	.20	.63	13
.40	2.02	.50	5.26	2.99	14
7.31	.49	.79	.14	.82	15
.88	5.80	.67	.84	.19	
.31	.55	1.76	.47	7.21	
.77	.71	8.79	.90	.74	
.08	8.69	.14	3.29	4.55	
5.67	4.61	.18	5.94	5.12	
.22	8.13	.95	.37	4.76	
2.88	.48	.32	4.19	2.14	



Correct Position at Calculator

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 40 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 40 by number of correct answers)
Gross strokes a minute..... (Divide gross strokes by 3)	Net strokes a minute..... (Divide net strokes by 3)

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.



TOUCH ADDITION

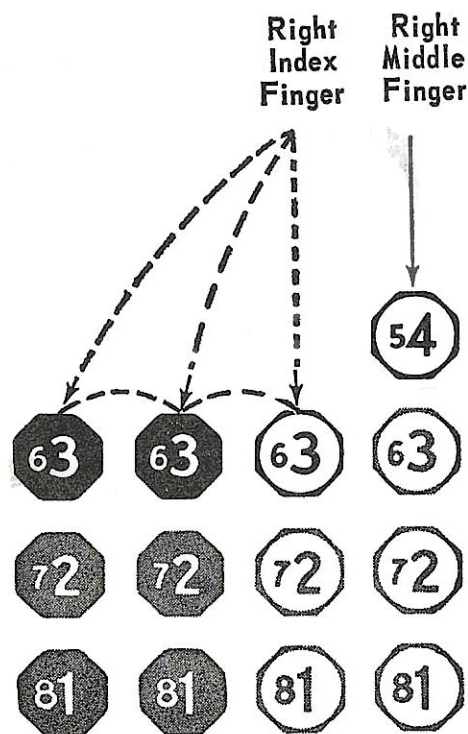
Four-Digit Numbers

Warm-Up Drill

Complete Warm-Up Drill A, page 18. Compute strokes and record results in the usual manner.

Four-Digit Numbers

1. Begin at the left side of the number.
2. Strike keys for the first three digits with the right index finger.
3. Strike the units digit with the right middle finger.
4. Strive for an even, rhythmic action.



JOB No. 14
TOUCH ADDITION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

To Complete Problem (1):

1. Strike 30.00, 3.00, and .30 with the right index finger.
2. Strike 4 with the right middle finger.
3. Before proceeding with Problem (1), strike 33.34 until an even, rhythmic action is achieved.

(1)	(2)	(3)	(4)
33.34	23.38	11.10	44.55
33.32	23.33	12.20	54.33
33.34	32.33	11.26	40.93
33.33	64.49	12.27	21.26
34.33	22.33	12.32	72.38
33.34	23.20	73.21	30.60
33.33	22.35	23.20	94.03
34.44	95.53	21.10	86.20
34.33	33.53	12.10	12.60
(5)	(6)	(7)	(8)
.97	33.04	5.85	35.33
65.82	.10	72.23	.90
.08	23.45	.19	5.28
54.30	28.34	42.38	66.31
3.32	.06	.09	24.44
.99	2.43	7.51	.72
.12	48.76	8.00	.99
25.57	5.31	53.38	59.30
.33	.42	9.25	4.60

Answers

1	
2	
3	
4	
5	
6	
7	
8	

JOB No. 14 (Cont'd.)

PURCHASE DISTRIBUTION					
To A. E. Stockton			Date Sept. 30, 19—		
Purchase Order No.	Dresses	Hats	Coats	Shoes	Skirts
500	93.45	88.77	50.67	80.46	49.38
501	45.67	42.23	75.69	33.56	62.49
502	46.80	34.55	24.79	65.45	32.90
503	60.45	77.88	64.35	63.67	89.42
504	61.34	95.69	67.78	56.43	38.70
505	46.87	33.57	61.53	43.43	92.68
TOTAL					

(9) (10) (11) (12) (13)

Timed Drill

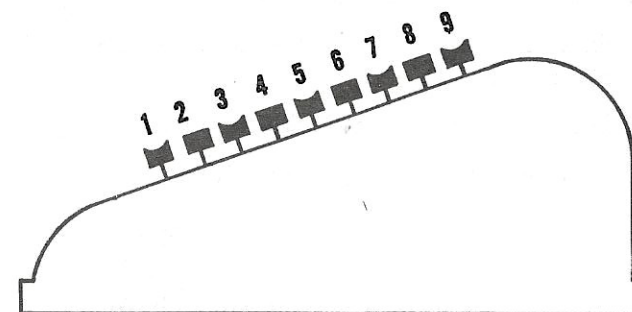
(1)	(2)	(3)	(4)	(5)
38.47	.33	76.52	64.85	36.04
1.36	7.67	1.59	5.36	6.17
.20	31.43	.45	84.28	.44
45.22	3.79	19.44	.52	78.16
7.74	41.22	.86	6.46	.80
.16	.89	2.64	.48	4.58
4.23	5.33	.63	23.55	.44
74.60	63.95	25.42	6.22	95.41
8.95	.51	5.47	4.36	.84
9.59	.92	.95	79.38	29.16
61.04	.15	82.36	.46	44.23
.68	70.69	8.39	9.00	6.97

JOB No. 14 (Cont'd.)

Purchase Distribution

On a Purchase Distribution form, the daily purchases are classified by type of goods purchased. Such information aids the Purchasing Department in controlling inventory and in placing future orders.

To complete the Purchase Distribution in Problems (9) to (13), add each Amount column and record the totals.



Odd-Numbered Keys Are Concave.
Even-Numbered Keys Are Flat.

Timed Drill

Do Timed Drill Problems (1) to (5) in the usual manner.

Answers	
9	
10	
11	
12	
13	

Timed Drill	
1	
2	
3	
4	
5	



MULTIPLICATION Interposed Fingering Zeros

Warm-Up Drill

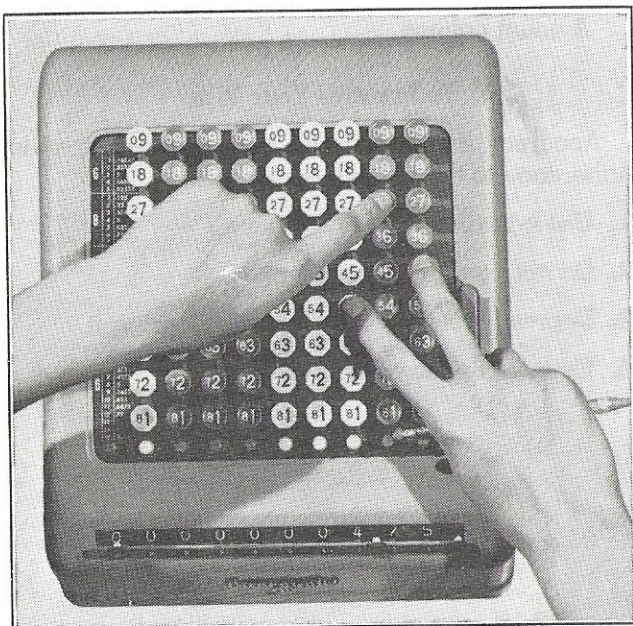
Complete Warm-Up Drill B, page 24. Compute strokes and record results in the usual manner.

Interposed Fingering

Many multiplication combinations can be simplified by placing the fingers of one hand between the fingers of the other hand as illustrated below. This method of fingering is called **interposed fingering**.

After practice in operating and moving from column to column without breaking rhythm, the holding of such combinations will be as simple as "natural" combinations.

In multiplying, always lift the fingers slightly above the keys after striking them. It is natural for the hands to move in unison when they are performing the same operation.



Interposed Fingering

(37)

JOB No. 15
MULTIPLICATION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

Interposed Fingering

- | | |
|-------------------------------|--------------------------------|
| (1) $475 \times 73 =$ _____ | (6) $3,517 \times 72 =$ _____ |
| (2) $2,836 \times 81 =$ _____ | (7) $8,283 \times 12 =$ _____ |
| (3) $7,162 \times 24 =$ _____ | (8) $8,162 \times 62 =$ _____ |
| (4) $1,736 \times 76 =$ _____ | (9) $4,728 \times 46 =$ _____ |
| (5) $6,253 \times 82 =$ _____ | (10) $3,656 \times 35 =$ _____ |

Answers

1
2
3
4
5
6
7
8
9
10

Purchase Order

The **purchase order** is used by the businessman to place his order for goods.

To Complete Problems (11) to (14):

1. Multiply Quantity by Unit Price and record answer in Amount column.
2. Add amounts and record Total at bottom of Amount column.

GIBBS DISTRIBUTING COMPANY 3703 Fourth Avenue Los Angeles 8, California					PURCHASE ORDER NO. 17359	
REQN. NO. C-148	DATE NEEDED 3/16/19--	FOR Dept. C	TERMS 2/10,n/30	DATE 3/1/19--		
TO The Fabric Mart 1281 Main Street, San Francisco 16, Calif.					SHIP VIA Express	
DELIVER TO Gibbs Distributing Company (Warehouse) 3705 Fourth Avenue, Los Angeles 8, Calif.						
QUANTITY	DESCRIPTION			UNIT	UNIT PRICE	AMOUNT
193 yd.	RAYON SATIN RIBBON #246			yd.	.25	
296 yd.	RAYON SATIN RIBBON #379			yd.	.28	
172 yd.	RAYON SATIN RIBBON #476			yd.	.42	
				Total		
B. F. GARDNER PURCHASING AGENT						

Answers

11
12
13
14

(37)

JOB No. 15 (Cont'd.)

Zeros in the Multiplier

(15) $435 \times 30 =$ _____

(16) $367 \times 240 =$ _____

(17) $823 \times 5.06 =$ _____

(18) $122 \times 400 =$ _____

(19) $724 \times .06 =$ _____

Answers

15	
16	
17	
18	
19	

GIBBS DISTRIBUTING COMPANY 3703 Fourth Avenue Los Angeles 8, California					PURCHASE ORDER NO. 17360	
REQN. NO. A-32	DATE NEEDED 3/18/19--	FOR Dept. A	TERMS 2/10,n/30	DATE 3/1/19--		
TO Portland Drug & Sundry Company 732 Main Street, Portland 27, Oregon					SHIP VIA Express	
DELIVER Gibbs Distributing Company (Warehouse) TO 3705 Fourth Avenue, Los Angeles 8, Calif.						
QUANTITY	DESCRIPTION		UNIT	UNIT PRICE	AMOUNT	
.9 doz.	LIPSTICKS #613		doz.	10.30		
18 box	FACE POWDER #3498		box	.50		
28 jar	HAND LOTION #62A		jar	1.05		
18 doz.	NAIL POLISH #3247		doz.	.60		
Total						
<i>B. J. Gardner</i> PURCHASING AGENT						

JOB No. 15 (Cont'd.)

Zeros in the Multiplier

1. Hold the keys as usual for the multiplicand.
2. Move one place to the left without striking the multiplicand keys whenever a zero occurs in the multiplier.

To Complete Problem (15):

1. Hold keys for 435 at the right of the keyboard, but do not strike the keys.
2. Move your fingers one place to the left (you are now holding 4,350) and strike the keys simultaneously three times.
The product is 13,050.

To Complete Problems (20) to (24):

1. Multiply Quantity by Unit Price and record answer in Amount column.
2. Add amounts and record total at bottom of Amount column.

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. Use a rhythmic, bounce touch.
2. Do not pause between strokes.
3. Depress each key fully before releasing it.
4. Estimate the answer mentally.

Answers

20	
21	
22	
23	
24	

JOB No. 15 (Cont'd.)

Zeros in the Multiplicand

When the multiplicand contains one or more zeros, no key is held in the columns represented by the zeros.

To Complete Problem (25):

1. Hold 7 in the hundreds column with the left index finger, and 8 in the units column with the right index finger.
2. Strike the keys six times.
3. Move one place to the left and strike the keys twice. The product is 18,408.

To Complete Problems (30) to (33):

Fewer key depressions will be necessary if the Unit Price is held on the keyboard as the multiplier.

1. Multiply the Unit Price by the Quantity and record the answer in the Amount column.
2. Add amounts and record Total at bottom of Amount column.

JOB No. 15 (Cont'd.)

Name _____

Zeros in the Multiplicand

(25) $708 \times 26 =$ _____

(26) $420 \times 13 =$ _____

(27) $50 \times 121 =$ _____

(28) $800 \times 241 =$ _____

(29) $260 \times 302 =$ _____

Answers

25	
26	
27	
28	
29	

GIBBS DISTRIBUTING COMPANY 3703 Fourth Avenue Los Angeles 8, California					PURCHASE ORDER NO 17361	
REQN. NO.	DATE NEEDED	FOR	TERMS	DATE		
A-33	3/18/19--	Dept. A	Net	3/1/19--		
TO					SHIP VIA	
Akin Drug Company					Express	
278 North College, Cedar Falls, Iowa						
DELIVER TO						
Gibbs Distributing Company (Warehouse)						
3705 Fourth Avenue, Los Angeles 8, Calif.						
QUANTITY	DESCRIPTION			UNIT	UNIT PRICE	AMOUNT
3 doz	TOOTHPASTE #491			doz	3.09	
8 doz	TOOTH POWDER #42			doz	3.80	
15 doz	TOOTHBRUSHES #684			doz	3.60	
Total						
<i>BT Gardner</i> PURCHASING AGENT						

Answers

30	
31	
32	
33	

JOB No. 15 (Cont'd.)

SUNFAST DEPARTMENT STORE South Orange Drive Miami 2, Florida			
Name MR. RICHARD KNOWLES 912 QUINCY AVE. MIAMI 10, FLA.			
S e t n o d	Name <u>fake</u>		
Date 9/9/-	Dept. 53	362	Kind of Sale Chg.
Quan.	Article	Unit Price	Amount
6	Baseballs	2 92	17 52
3	Baseball bats	3 08	9 24
3	Baseball bats	4 85	14 45
1	Fielder's glove	9 38	9 38
10	Baseball caps	1 13	11 30
Auditor's Stub		362	Amt. Rec'd. Total 61.89
Date 9/9/-	Dept. 53	Kind of Sale Chg.	

(34)

Timed Drill

- | | |
|------------------------|------------------------|
| (1) 263 × 83 = _____ | (6) 846 × 350 = _____ |
| (2) 596 × 51 = _____ | (7) 267 × 405 = _____ |
| (3) 9,485 × 62 = _____ | (8) 135 × .005 = _____ |
| (4) 2,836 × 35 = _____ | (9) 708 × 306 = _____ |
| (5) 5,143 × 24 = _____ | (10) 507 × 403 = _____ |

(40)

JOB No. 15 (Cont'd.)

Sales Tickets

Calculating-machine operators often check the accuracy of sales tickets, or sales slips, prepared by salespeople in a department store.

To Complete Problems (34) and (35):

1. Multiply the Quantity by the Price to determine the accuracy of the Amount.
2. Place a check mark (✓) beside the Amount if it is correct. If an amount is incorrect, cross it out and write the correct answer.
3. Add numbers in the Amount column to check the accuracy of the Total. If the Total is incorrect, cross it out and write the correct answer.

SUNFAST DEPARTMENT STORE South Orange Drive Miami 2, Florida			
Name MRS. ARTHUR PAGE 2962 LAFAYETTE AVE. MIAMI 31, FLA.			
S e t n o d	Name <u>fake</u>		
Date 9/9/-	Dept. L4	363	Kind of Sale Cash
Quan.	Article	Unit Price	Amount
2	Fountain pens	4 50	9 00
6	Bottles of blue ink	18	1 08
5	Rulers	15	75
3	Staplers	1 60	5 07
9	Loose-leaf books	59	5 31
Auditor's Stub		363	Amt. Rec'd. Total 21.21
Date 9/9/-	Dept. L4	Kind of Sale Cash	

(35)

Timed Drill

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Do Timed Drill Problems (1) to (10) in the usual manner.

(40)



SUBTRACTION

Zeros and Nines
Fewer Digits in Subtrahend

Warm-Up Drill

Complete Warm-Up Drill A, page 18. Compute strokes and record results in the usual manner.

Duplex Calculator

Solve all problems in the customary manner (See Job No. 7). No special instructions are necessary.

Standard Calculator

Special instructions are necessary to solve the problems of this job. Follow these instructions very closely.

Zeros in Subtrahend

Solve these problems using the customary procedure for subtraction (See Job No. 7). Notice there is a **small** zero key. This key must be struck for all zeros in the subtrahend.

Nines in Subtrahend

Notice there is no **small** 9 on the keys of your calculator.

- When 9 appears in the subtrahend, no key is struck for the column in which it occurs.
- When 9 is the first number in the subtrahend, the column should be treated as if it were used even though no key is depressed. Depress 9's or operate the subtraction control key to the left of the column in which the 9 occurs.

JOB No. 16
SUBTRACTION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

Zeros in Subtrahend

To Complete Problem (1):

Standard Calculator

- Enter 456 using the touch method.
- Complete the subtraction problem by the usual method for your machine (See Job No. 7). Remember to depress **small** 301 (302 less 1). The answer is 154.

$$\begin{array}{r} (1) \\ 456 \\ -302 \\ \hline \end{array}$$

$$\begin{array}{r} (2) \\ 855 \\ -502 \\ \hline \end{array}$$

$$\begin{array}{r} (3) \\ 389 \\ -206 \\ \hline \end{array}$$

$$\begin{array}{r} (4) \\ 936 \\ -207 \\ \hline \end{array}$$

$$\begin{array}{r} (5) \\ 846 \\ -605 \\ \hline \end{array}$$

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Nines in Subtrahend

To Complete Problem (6):

Standard Calculator

- Enter 675 using the touch method.
- Complete the subtraction problem by the usual method for your machine. Remember to depress **small** 4 in the hundreds column. **Do not depress a key in the tens column.** Depress **small** 2 in the units column. The answer is 182.

$$\begin{array}{r} (6) \\ 675 \\ -493 \\ \hline \end{array}$$

$$\begin{array}{r} (7) \\ 585 \\ -480 \\ \hline \end{array}$$

$$\begin{array}{r} (8) \\ 822 \\ -600 \\ \hline \end{array}$$

$$\begin{array}{r} (9) \\ 509 \\ -310 \\ \hline \end{array}$$

$$\begin{array}{r} (10) \\ 980 \\ -293 \\ \hline \end{array}$$

JOB No. 16 (Cont'd.)

To Complete Problem (11):

Standard Calculator

1. Enter 975.

2. a. **Calculators with Subtraction Control Keys:** Operate the subtraction control key immediately to the left of the **hundreds** column.

b. **Calculators Without Subtraction Control Keys:** Depress four number 9 keys to the left of the **hundreds** column.

3. Do not depress a key in the hundreds column since there are no **small** 9's. Depress **small** 4 in the tens column and **small** 1 in the units column. The answer is 33.

(11)	(12)	(13)	(14)	(15)
975	984	928	993	950
<u>-942</u>	<u>-966</u>	<u>-917</u>	<u>-921</u>	<u>-907</u>
_____	_____	_____	_____	_____

Answers	
11	
12	
13	
14	
15	

Fewer Digits in Subtrahend

To Complete Problem (16):

Burroughs

1. Enter 743.

2. Place the right index finger on **small** 20.

a. **Calculators with Subtraction Control Keys:** Operate the subtraction control key immediately to the left of the column you are holding.

b. **Calculators Without Subtraction Control Keys:** Depress four number 9 keys to the left of the column you are holding.

3. Depress keys for **small** 27. The answer is 715.

(16)	(17)	(18)	(19)	(20)
743	864	705	2,814	2,404
<u>-28</u>	<u>-75</u>	<u>-55</u>	<u>-94</u>	<u>-973</u>
_____	_____	_____	_____	_____

Answers	
16	
17	
18	
19	
20	

JOB No. 16 (Cont'd.)

Fewer Digits in Subtrahend

Burroughs

Complete these problems in the usual manner (See Job No. 7). Depress four 9's or operate the subtraction control key immediately to the left of the first digit in the **subtrahend**.

Comptometer and Plus Calculators

Complete these problems in the usual manner (See Job No. 7). Operate the subtraction control key immediately to the left of the first digit in the **minuend**. Depress **small** 0's preceding the subtrahend so that the number of digits in the subtrahend is equal to the number of digits in the minuend.

Statement of Account

Usually each month a business sends to each customer who has not paid for all of his purchases a record of his transactions. This record is called a **statement of account**, or more briefly, a **statement**.

The balance of a statement is determined after each Charge or Credit has been entered.

To check the accuracy of the statement in Problem (21):

1. Add each Charge to the previous Balance.
2. Subtract each Credit from the previous Balance.
3. If an error is found, make the correction on the statement.

(21)

BOWMAN SUPPLY COMPANY

3462 State Street
Chicago, Illinois

S T A T E M E N T

Name
Address
City

.Campus Center
.324 Broadway
.Bloomington, Indiana

Detach and return above stub with remittance

DATE	REFERENCE	CHARGES	CREDITS	BALANCE
Balance Brought Forward 35.23				
Feb 3	Inv 249	28.30		63.53
4	Chk			28.30
6	Inv 288	64.55	35.23	92.85
10	Chk		9.28	83.57
12	Inv 345	8.67		92.24
16	Chk		92.24	.00
18	Inv 425	35.80		35.80
21	CrM 85		8.55	27.25
24	Inv 500	40.70		67.95
25	Chk		35.80	32.45
Pay last amount in Balance column				

JOB No. 16 (Cont'd.)

Timed Drill

(1)	(2)	(3)	(4)	(5)
$\begin{array}{r} 594 \\ -201 \\ \hline \end{array}$	$\begin{array}{r} 476 \\ -311 \\ \hline \end{array}$	$\begin{array}{r} 960 \\ -942 \\ \hline \end{array}$	$\begin{array}{r} 490 \\ -101 \\ \hline \end{array}$	$\begin{array}{r} 738 \\ -291 \\ \hline \end{array}$
_____	_____	_____	_____	_____
(6)	(7)	(8)	(9)	(10)
$\begin{array}{r} 763 \\ -599 \\ \hline \end{array}$	$\begin{array}{r} 215 \\ -86 \\ \hline \end{array}$	$\begin{array}{r} 426 \\ -36 \\ \hline \end{array}$	$\begin{array}{r} 580 \\ -91 \\ \hline \end{array}$	$\begin{array}{r} 682 \\ -95 \\ \hline \end{array}$
_____	_____	_____	_____	_____
(11)	(12)	(13)	(14)	(15)
$\begin{array}{r} 743 \\ -381 \\ \hline \end{array}$	$\begin{array}{r} 462 \\ -93 \\ \hline \end{array}$	$\begin{array}{r} 506 \\ -290 \\ \hline \end{array}$	$\begin{array}{r} 734 \\ -297 \\ \hline \end{array}$	$\begin{array}{r} 624 \\ -408 \\ \hline \end{array}$
_____	_____	_____	_____	_____
(16)	(17)	(18)	(19)	(20)
$\begin{array}{r} 734 \\ -48 \\ \hline \end{array}$	$\begin{array}{r} 286 \\ -95 \\ \hline \end{array}$	$\begin{array}{r} 469 \\ -72 \\ \hline \end{array}$	$\begin{array}{r} 682 \\ -70 \\ \hline \end{array}$	$\begin{array}{r} 789 \\ -31 \\ \hline \end{array}$
_____	_____	_____	_____	_____

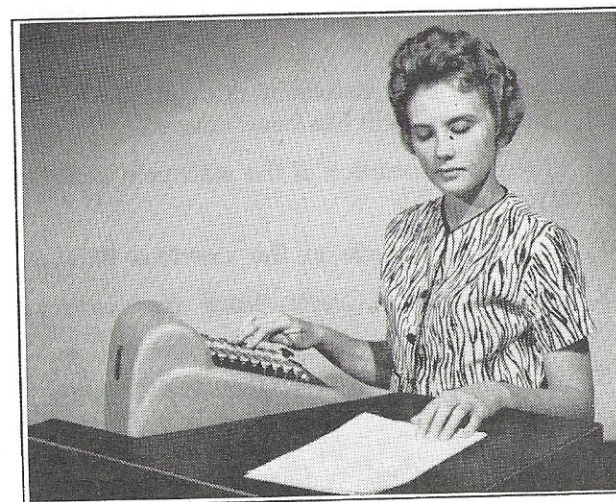
Timed Drill

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

JOB No. 16 (Cont'd.)

Timed Drill

Do Timed Drill Problems (1) to (20) in the usual manner.



Correct Position at Calculator



SPEED DRILL

Four-Column Addition

This drill contains 15 problems of 50 strokes each, a total of 750 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

- Complete each problem once, writing the answer in the space directly below the problem.
- Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - If the second answer is not the same as the first, write the second answer directly below the first answer.
- Record in the Time Record at the right the time that was required to complete the drill.
- Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
- When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 17
SPEED DRILL

Name _____

No. of Errors _____

Period _____ Date _____

Rating _____

(1)	(2)	(3)	(4)	(5)
24.36	.88	5.34	56.31	.12
61.29	13.75	58.27	10.00	.09
2.03	.92	1.24	45.19	29.84
.06	23.41	57.36	3.14	3.96
45.95	54.10	3.19	12.50	74.34
.15	65.89	2.63	10.90	1.20
6.98	6.55	96.51	58.56	7.52
75.68	.71	23.38	39.43	.45
14.33	3.18	6.23	9.60	67.74
.33	3.52	.40	6.59	81.40
39.98	7.18	.92	92.34	48.18
.06	51.27	72.35	6.29	6.72
_____	_____	_____	_____	_____

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

(6)	(7)	(8)	(9)	(10)
.80	97.23	6.15	9.57	5.04
.07	.53	47.72	35.96	4.86
4.27	6.10	4.97	.63	41.79
2.47	4.77	.06	36.59	.61
35.60	38.38	74.35	3.43	65.17
12.57	.08	.41	.13	.82
7.26	.07	8.62	71.59	92.49
9.72	.53	92.27	9.26	8.58
31.55	79.42	2.00	40.73	7.94
6.09	7.92	4.95	.52	29.19
61.17	17.19	13.95	12.13	.02
7.81	6.16	42.91	.98	.06
_____	_____	_____	_____	_____

Answers	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 17 (Cont'd.)

(11)	(12)	(13)	(14)	(15)
.41	64.56	6.26	70.87	.42
7.09	4.98	74.32	.98	9.81
83.40	14.34	18.79	7.13	.47
.97	6.91	31.82	5.85	7.71
4.75	40.33	.24	59.59	19.99
96.18	3.07	.33	3.37	2.01
2.16	.18	77.44	3.70	96.29
.79	89.31	7.61	.09	.72
17.97	.70	6.92	3.63	60.51
.27	87.52	5.53	36.74	8.94
.04	5.32	.81	.55	.94
46.46	.88	2.10	3.86	2.36

Answers

11	
12	
13	
14	
15	

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 50 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 50 by number of correct answers)
Gross strokes a minute..... (Divide gross strokes by 3)	Net strokes a minute..... (Divide net strokes by 3)

JOB No. 17 (Cont'd.)



Correct Position at Calculator

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

18

CROSSFOOTING

Warm-Up Drill

Complete Warm-Up Drill C, which is explained below.

Warm-Up Drill C

Complete the following multiplication problems as many times as possible during the first five minutes of the period. Each problem requires 15 strokes. Compute strokes and record results in the usual manner.

- (1) $738.2 \times .78 =$ _____
- (2) $41.37 \times .69 =$ _____
- (3) $62.9 \times 76.20 =$ _____
- (4) $738 \times 48.3 =$ _____
- (5) $79 \times 246.3 =$ _____
- (6) $456 \times 348 =$ _____
- (7) $88 \times 22.92 =$ _____
- (8) $279 \times 94.2 =$ _____
- (9) $3.98 \times 65.4 =$ _____
- (10) $99 \times 55.32 =$ _____
- (11) $.298 \times 7.62 =$ _____
- (12) $9.32 \times 7.44 =$ _____
- (13) $.783 \times 3.66 =$ _____
- (14) $25.83 \times 7.8 =$ _____
- (15) $74.5 \times 3.48 =$ _____

Crossfooting

Adding numbers horizontally instead of vertically is called **crossfooting**. Use the touch system in solving these problems.

JOB No. 18
CROSSFOOTING

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

$$(1) 3.33 + 3.43 + 4.44 + 4.54 + 5.55 + 4.33 =$$

$$(2) 6.48 + 7.45 + 8.63 + 3.45 + 9.48 + 6.73 =$$

$$(3) 4.45 + 5.94 + 4.04 + 3.20 + 2.64 + 4.59 =$$

$$(4) 2.13 + 6.49 + 7.31 + 1.25 + 9.08 + 6.73 =$$

$$(5) 8.35 + 9.32 + 2.14 + 7.28 + 4.92 + 1.13 =$$

$$(6) 7.24 + 8.35 + 9.61 + 1.27 + 3.49 + 4.61 =$$

$$(7) 9.42 + 2.69 + 7.25 + 5.09 + 4.31 + 1.28 =$$

$$(8) 5.46 + 3.72 + 2.14 + 7.69 + 8.32 + 2.19 =$$

$$(9) 2.13 + 6.40 + 8.50 + 9.31 + 1.26 + 3.75 =$$

$$(10) 4.39 + 7.20 + 2.65 + 9.49 + 8.71 + 1.10 =$$

$$(11) 6.31 + 9.12 + 1.48 + 6.23 + 4.80 + 1.28 =$$

$$(12) 5.76 + 8.82 + 4.36 + 4.82 + 2.49 + 4.19 =$$

$$(13) 4.01 + 2.42 + 5.23 + 1.79 + .86 + 8.73 =$$

$$(14) 9.38 + 7.36 + .02 + 2.96 + 1.23 + 2.78 =$$

$$(15) 3.49 + 1.01 + 6.81 + 1.34 + 6.58 + 5.10 =$$

Answers

1	
2	
3	
4	
5	
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11	
12	
13	
14	
15	

SALES ANALYSIS

February 1-13, 19—

Women's Wear

Day	Coats	Dresses	Street Dresses	Shoes	Daily Totals
1	12	24	11	41	
2	14	16	18	39	
3	18	30	7	52	
4	13	22	21	58	
5	9	27	18	30	
6	20	44	30	72	
8	6	33	14	36	
9	11	25	17	40	
10	11	28	21	51	
11	14	31	16	60	
12	16	35	31	48	
13	24	52	41	72	
Summary					

(28)

(29)

(30)

(31)

(32)

Answers

16

17

18

19

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28

29

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31

32

A sales analysis enables management to determine each day the composition of total sales. A daily analysis of sales aids in effectively controlling future ordering of merchandise.

To Complete Problems (16) to (32):

1. Crossfoot the amounts for each day to determine the Daily Totals.
2. Add the columns vertically to obtain the summaries of Coats, Dresses, Street Dresses, Shoes, and Daily Totals.
3. To prove the accuracy of your work, crossfoot the summary for each item. The answer should be the same as the summary of the Daily Totals.

Sales Ticket Summary

A **sales ticket summary** provides a daily record of the total sales for various kinds of merchandise. For example, the owner of a grocery may classify his sales under the headings, Groceries, Fresh Fruits and Vegetables, Dairy Products, and Meat. At the end of the day the owner is able to summarize the sales for each classification and to determine the total daily sales.

To Complete Problems (33) to (52):

1. Crossfoot each Sales Ticket to determine the Amount.
2. Add the columns vertically to find the Totals of Groceries, Fresh Fruits and Vegetables, Dairy Products, Meat, and the Amount.
3. To prove the accuracy of your work, crossfoot the Totals of Groceries, Fresh Fruits and Vegetables, Dairy Products, and Meat. The answer should be the same as the total of the Amount column.

SALES TICKET SUMMARY						Answers
Sales Ticket Number	Groceries	Fresh Fruits and Vegetables	Dairy Products	Meat	Amount	
1201	12.35	.86	1.57	12.81		33
1202	4.25	2.47	1.86	6.87		34
1203				8.04		35
1204	3.68	7.63				36
1205		5.44	4.32			37
1206	3.45	5.45	3.23	5.88		38
1207		8.63	3.47	6.60		39
1208	1.34	3.55				40
1209		5.40	3.34	4.50		41
1210	3.45	4.84	4.35	5.43		42
1211		3.44	7.44	13.34		43
1212		4.05				44
1213		5.04	4.32	21.20		45
1214	7.60		2.34	8.61		46
1215	5.43	6.29				47
Totals						48
	(48)	(49)	(50)	(51)	(52)	49
						50
						51
						52

JOB No. 18 (Cont'd.)

Timed Drill

- (1) $4.50 + 5.99 + 65.43 + 3.33 =$ _____
- (2) $6.34 + 94.85 + 9.74 + 64.08 =$ _____
- (3) $16.30 + 3.90 + 26.21 + 1.58 =$ _____
- (4) $77.30 + 54.27 + 7.74 + 39.12 =$ _____
- (5) $6.88 + 3.68 + 1.63 + 2.48 =$ _____
- (6) $64.54 + 74.03 + 3.33 + 73.21 =$ _____
- (7) $1.33 + .35 + .54 + 4.04 =$ _____
- (8) $92.10 + .15 + 65.80 + .43 =$ _____
- (9) $.12 + 2.02 + 3.04 + 94.08 =$ _____
- (10) $74.18 + 16.27 + 8.89 + 66.89 =$ _____
- (11) $.54 + 3.59 + 2.04 + 7.30 + 81.50 =$ _____
- (12) $72.44 + 93.06 + 84.50 + 85.06 + .35 =$ _____
- (13) $3.60 + 4.05 + 9.84 + 4.10 + 1.55 =$ _____
- (14) $2.45 + 85.03 + 3.45 + 5.22 + 1.45 =$ _____
- (15) $6.66 + 3.43 + 3.67 + .35 + 95.05 =$ _____

Timed Drill

1
2
3
4
5
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15

JOB No. 18 (Cont'd.)

Timed Drill

Do Timed Drill Problems (1) to (15) in the usual manner.



Crossfootting Amounts for a Sales Analysis



DIVISION

Decimals in Quotient
Decimals in Dividend and Divisor
Nines in Divisor

Warm-Up Drill

Complete Warm-Up Drill B, page 24. Compute strokes and record results in the usual manner. Review instructions on division by the trial-divisor method in Job 9.

Summary of Steps for Division

- Equal** — the number in the trial-divisor dial.
- Reduce** — the number in the answer dials directly below the divisor keys being held.
- Move fingers** — one place to the right.

Division may start with any of the three steps: Equal, Reduce, or Move Fingers.

If you cannot start with Step 1, Equal, proceed to Step 2 or to Step 3 and repeat the Steps in sequence until there is no remainder or until the quotient is accurate to two decimal places.

Decimals in the Quotient

When the quotient has a decimal remainder, solve the problem to three decimal places, if possible, to determine the accuracy of the second decimal.

Decimals in the Dividend and the Divisor

- Add the dividend into the dials.
- Move the decimal point to the proper place for the dividend in the dials.
- Move the decimal point one place to the left for each whole number digit in the divisor.
- Move the decimal point one place to the right for each preceding 0 in the divisor. (Do not depress keys for preceding 0's in the divisor.)
- If there are no whole numbers or preceding 0's in the divisor, do not move the decimal point.

Digits in Divisor

Move Decimal Point

2 whole numbers (42.38)	2 places to left
1 whole number (4.238)	1 place to left
tenths (.4238)	Do not move
hundredths (.04238)	1 place to right
thousandths (.004238)	2 places to right

(51)

JOB No. 19

DIVISION

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

Decimals in the Quotient

8- and 9-Column Calculators

- (1a) $391 \div 25 =$ _____
(2a) $2,422 \div 56 =$ _____
(3a) $429 \div 63 =$ _____
(4a) $5,764 \div 27 =$ _____
(5a) $5,816 \div 236 =$ _____
(6a) $2,348 \div 67 =$ _____
(7a) $3,645 \div 38 =$ _____
(8a) $8,144 \div 27 =$ _____
(9a) $52,631 \div 146 =$ _____
(10a) $25,816 \div 752 =$ _____

5-Column Calculators

- (1b) $391 \div 25 =$ _____
(2b) $865 \div 73 =$ _____
(3b) $322 \div 21 =$ _____
(4b) $861 \div 42 =$ _____
(5b) $762 \div 16 =$ _____
(6b) $373 \div 18 =$ _____
(7b) $550 \div 82 =$ _____
(8b) $376 \div 58 =$ _____
(9b) $428 \div 51 =$ _____
(10b) $144 \div 64 =$ _____

Answers

1a
2a
3a
4a
5a
6a
7a
8a
9a
10a
11a
12a
13a
14a
15a
16a
17a
18a
19a
20a

Answers

1b
2b
3b
4b
5b
6b
7b
8b
9b
10b
11b
12b
13b
14b
15b
16b
17b
18b
19b
20b

Decimals in the Dividend and the Divisor

8- and 9-Column Calculators

- (11a) $25.5 \div .081 =$ _____
(12a) $68.9 \div 41 =$ _____
(13a) $147.6 \div 13 =$ _____
(14a) $15.01 \div 18.1 =$ _____
(15a) $539.14 \div 67.3 =$ _____
(16a) $77.03 \div 3.5 =$ _____
(17a) $64 \div 1.6 =$ _____
(18a) $1,441.2 \div 12.8 =$ _____
(19a) $80.9 \div 5.7 =$ _____
(20a) $552.4 \div 4.08 =$ _____

5-Column Calculators

- (11b) $717. \div 13.1 =$ _____
(12b) $99. \div 5.2 =$ _____
(13b) $30.1 \div 4.8 =$ _____
(14b) $8.601 \div 2.4 =$ _____
(15b) $81.5 \div 35 =$ _____
(16b) $.972 \div .028 =$ _____
(17b) $36.3 \div 51 =$ _____
(18b) $88.9 \div 7.2 =$ _____
(19b) $323.1 \div 84 =$ _____
(20b) $31.9 \div 3.4 =$ _____

(51)

JOB No. 19 (Cont'd.)

Nines in the Divisor

8- and 9-Column Calculators

(21a) $631 \div 94 = \underline{\hspace{2cm}}$
 (22a) $385 \div 97 = \underline{\hspace{2cm}}$
 (23a) $1,244 \div 39 = \underline{\hspace{2cm}}$
 (24a) $3,625 \div 60 = \underline{\hspace{2cm}}$
 (25a) $8,487 \div 99 = \underline{\hspace{2cm}}$
 (26a) $4,862 \div 100 = \underline{\hspace{2cm}}$
 (27a) $3,672 \div 110 = \underline{\hspace{2cm}}$
 (28a) $52,392 \div 989 = \underline{\hspace{2cm}}$
 (29a) $37,641 \div 91 = \underline{\hspace{2cm}}$
 (30a) $7,431 \div 190 = \underline{\hspace{2cm}}$

5-Column Calculators

(21b) $686 \div 94 = \underline{\hspace{2cm}}$
 (22b) $689 \div 97 = \underline{\hspace{2cm}}$
 (23b) $693 \div 39 = \underline{\hspace{2cm}}$
 (24b) $711 \div 60 = \underline{\hspace{2cm}}$
 (25b) $510 \div 99 = \underline{\hspace{2cm}}$
 (26b) $764 \div 100 = \underline{\hspace{2cm}}$
 (27b) $505 \div 91 = \underline{\hspace{2cm}}$
 (28b) $421 \div 89 = \underline{\hspace{2cm}}$
 (29b) $969 \div 90 = \underline{\hspace{2cm}}$
 (30b) $147 \div 20 = \underline{\hspace{2cm}}$

Answers

21a	
22a	
23a	
24a	
25a	
26a	
27a	
28a	
29a	
30a	

Answers

21b	
22b	
23b	
24b	
25b	
26b	
27b	
28b	
29b	
30b	

Timed Drill

8- and 9-Column Calculators

(1a) $796 \div 26 = \underline{\hspace{2cm}}$
 (2a) $81,995 \div 818 = \underline{\hspace{2cm}}$
 (3a) $3,475 \div 476 = \underline{\hspace{2cm}}$
 (4a) $2,043.1 \div 27.4 = \underline{\hspace{2cm}}$
 (5a) $750.7 \div 74 = \underline{\hspace{2cm}}$
 (6a) $334.6 \div 6.91 = \underline{\hspace{2cm}}$
 (7a) $50.23 \div 4.66 = \underline{\hspace{2cm}}$
 (8a) $9,377 \div 99 = \underline{\hspace{2cm}}$
 (9a) $220 \div 60 = \underline{\hspace{2cm}}$
 (10a) $5,669 \div 91 = \underline{\hspace{2cm}}$

5-Column Calculators

(1b) $796 \div 26 = \underline{\hspace{2cm}}$
 (2b) $191 \div 15 = \underline{\hspace{2cm}}$
 (3b) $967 \div 87 = \underline{\hspace{2cm}}$
 (4b) $78.2 \div 94 = \underline{\hspace{2cm}}$
 (5b) $751 \div 3.9 = \underline{\hspace{2cm}}$
 (6b) $98.7 \div 11.2 = \underline{\hspace{2cm}}$
 (7b) $130.5 \div 43 = \underline{\hspace{2cm}}$
 (8b) $510 \div 99 = \underline{\hspace{2cm}}$
 (9b) $492 \div 60 = \underline{\hspace{2cm}}$
 (10b) $532 \div 91 = \underline{\hspace{2cm}}$

Timed Drill

1a	
2a	
3a	
4a	
5a	
6a	
7a	
8a	
9a	
10a	

Timed Drill

1b	
2b	
3b	
4b	
5b	
6b	
7b	
8b	
9b	
10b	

JOB No. 19 (Cont'd.)

Nines in the Divisor

Notice that there are no **small** number 9's on the keys.

1. When 9 appears in the divisor, no key is held for the column in which it occurs.
2. When 9 is the first number in the divisor, the column should be treated as if it were used even though no key is depressed. The trial-divisor dial then becomes the dial to the left of the column in which the 9 occurs.

Divisors of 1 with Zeros

To divide by 10, 100, 1,000, etc., hold only **small** 0 and complete the problem in the usual manner. In Problems (26a) and (26b), 100 less 1 equals 099. Since there are no **small** 9's, only the **small** zero is held and the problem is completed in the usual manner.

For problems such as (26a) and (26b), however, machine operations may be eliminated by simply moving the decimal point as many places to the left as there are zeros in the divisor. An operator should not hesitate to use mental arithmetic whenever such a procedure is faster and likely to be more accurate.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

NOTE: Your next assignment in this book is Job No. 21. Before proceeding with Job. No. 21, ask your instructor about Job No. 20, which is Test No. 2.



MULTIPLICATION

Fractions

Multiplication

Complete Warm-Up Drill D, page 54. Compute strokes and record results in the usual manner.

Fractions

Decimals, fractions, and percentages are different methods of expressing part of a whole, or 1.

The following terms have the same value in expressing part of a whole:

- .25 Decimal
- 1/4 Fraction
- 25/100 Fraction expressed as hundredth
- 25% Per cent

Since calculators are not designed to handle fractions, the fractions must be converted to decimals before entering them in the machine.

To Complete Problems (1) to (24):

Change each fraction to a decimal by dividing the numerator by the denominator. (The numerator is the upper number in a fraction. The denominator is the lower number in a fraction.) The most common decimal equivalents of fractions are given in the table below. If a fraction has four decimal places in the table, use all four places in your calculations. Thus, the answer will be accurate to three decimals and can be rounded to the usual two decimal places.

The multiplication is then completed, using a decimal, in the manner described in Job No. 5.

Decimal Equivalents					
	3rds		4ths		
1/3	.3333	1/4	.25		
2/3	.6667	1/2	.5		
		3/4	.75		
	5ths		6ths		
1/5	.2	1/6	.1667		
2/5	.4	5/6	.8333		
3/5	.6				
4/5	.8				
	8ths		12ths		
1/8	.125	1/12	.0833		
3/8	.375	5/12	.4167		
5/8	.625	7/12	.5833		
7/8	.875	11/12	.9167		

JOB No. 21

MULTIPLICATION

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

(1) $4 \frac{1}{2} \times 37 =$ _____ (11) $62 \times 2 \frac{1}{8} =$ _____

(2) $4 \frac{1}{4} \times 26 =$ _____ (12) $455 \times 3 \frac{1}{4} =$ _____

(3) $6 \frac{1}{8} \times 32 =$ _____ (13) $192 \times \frac{3}{4} =$ _____

(4) $25 \times 4 \frac{3}{4} =$ _____ (14) $4 \times \frac{5}{6} =$ _____

(5) $75 \times \frac{1}{8} =$ _____ (15) $\frac{2}{3} \times 5 =$ _____

(6) $\frac{1}{3} \times 9 =$ _____ (16) $2 \frac{5}{8} \times 41 =$ _____

(7) $4 \frac{3}{4} \times 24 =$ _____ (17) $321 \times \frac{7}{8} =$ _____

(8) $8 \times \frac{1}{6} =$ _____ (18) $2 \times \frac{7}{12} =$ _____

(9) $5 \times \frac{1}{12} =$ _____ (19) $6 \frac{3}{4} \times 677 =$ _____

(10) $\frac{7}{8} \times 423 =$ _____ (20) $32 \times \frac{5}{6} =$ _____

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Purchase Requisition
G. GRUTERS & COMPANY

No. 368Date December 2, 19--

To the Purchasing Agent:
Please order items listed below:

Wanted January 3, 19--

QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT
6 1/2 doz.	Golf balls, #379	doz.	13.00	
4 1/4 doz.	Baseballs, #350	doz.	18.00	
2 1/8 doz.	Volleyballs, #438	doz.	25.00	
5 1/3 doz.	Handballs, #125	doz.	7.00	
Total				

Suggested Vendor:
B. Vaughn, Inc.
30 Woodland Drive
Groton, Conn.

Requisitioned by: Lee Dixon
Approved by: Carl Shaffer

Timed Drill

- (1) $56 \times 7 \frac{1}{4} =$ _____ (6) $84 \times \frac{1}{3} =$ _____
 (2) $60 \times 67 \frac{1}{5} =$ _____ (7) $57 \times 9 \frac{3}{8} =$ _____
 (3) $\frac{1}{6} \times 47 =$ _____ (8) $56 \frac{4}{5} \times 12 =$ _____
 (4) $6 \frac{5}{8} \times 28 =$ _____ (9) $5 \frac{7}{8} \times 93 =$ _____
 (5) $97 \times \frac{5}{6} =$ _____ (10) $68 \times \frac{1}{12} =$ _____

Warm-Up Drill D

During the first five minutes of the period do Warm-Up Drill D below, following the usual procedure. Each problem contains 50 strokes.

(1)	(2)	(3)
15.43	58.85	46.73
2.28	45.10	7.10
72.78	.79	.81
.03	.13	19.19
2.68	39.90	.85
2.05	13.82	99.80
37.17	8.59	.64
.08	54.07	82.24
94.57	8.38	.74
.70	90.82	7.35
41.98	5.46	9.58
27.44	.42	.56

Answers

21	
22	
23	
24	
25	

(4)	(5)	(6)
7.16	26.12	37.11
19.22	5.53	6.00
.19	.97	6.76
51.93	85.13	74.75
1.87	72.87	84.86
9.34	.04	.06
.18	.79	20.42
50.32	.13	.23
5.62	.87	1.94
.26	.81	75.25
.95	28.73	.41
77.72	13.66	17.93

Timed Drill

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.



MULTIPLICATION

Accumulation of Products

Warm-Up Drill

Complete Warm-Up Drill C, page 48. Compute strokes and record results in the usual manner.

Accumulation of Products

In some problems, such as checking the accuracy of the total of an invoice, the sum of the products of several individual multiplications is more important than the individual products. When only the total is the important element, the problems should be completed as described below.

Standard Calculator

1. Multiply the first pair of factors as usual, but do not clear the dials upon completion.
2. Repeat Step 1 for all additional pairs of factors in the problem without clearing the dials after each multiplication.
3. When all pairs of factors have been multiplied, the answer will appear in the dials.

Duplex Calculator

With a Duplex machine, the product of each pair of factors can be determined as follows:

1. Multiply the first pair of factors as usual.
2. Operate the lower-to-upper dials transfer key. This will clear the lower dials and transfer the product to the upper dials.
3. Multiply by the second pair of factors.
4. Repeat Steps 2 and 3 for all additional pairs of factors in the problem.

JOB No. 22

MULTIPLICATION

Name _____

Period _____ Date _____

No. of Errors _____

Strokes in

Warm-Up Drill _____

Rating _____

(1)

$$\begin{array}{r} 356 \times 22 \\ 37 \times 34 \\ 478 \times 15 \\ \hline \end{array}$$

(2)

$$\begin{array}{r} 46 \times 55 \\ 26 \times 33 \\ 178 \times 11 \\ \hline \end{array}$$

(3)

$$\begin{array}{r} 19 \times 21 \\ 56 \times 35 \\ 83 \times 25 \\ \hline \end{array}$$

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	

(4)

$$\begin{array}{r} 66 \times 34 \\ 89 \times 55 \\ 455 \times 26 \\ \hline \end{array}$$

(5)

$$\begin{array}{r} 467 \times 24 \\ 55 \times 33 \\ 67 \times 22 \\ \hline \end{array}$$

(6)

$$\begin{array}{r} 295 \times 86 \\ 45 \times 33 \\ 56 \times 45 \\ \hline \end{array}$$

(7)

$$\begin{array}{r} 328 \times 25 \\ 27 \times 48 \\ 568 \times 14 \\ \hline \end{array}$$

(8)

$$\begin{array}{r} 19 \times 35 \\ 56 \times 27 \\ 76 \times 60 \\ \hline \end{array}$$

(9)

$$\begin{array}{r} 631 \times 58 \\ 28 \times 85 \\ 275 \times 72 \\ \hline \end{array}$$

JOB No. 22 (Cont'd.)

(10)

SUNFAST SHADE CO. Ocean Drive Miami 8, Florida					
SOLD TO: .JONES HARDWARE CO. .PENINSULA DRIVE .OCEAN CITY, FLORIDA			Invoice No.1570 Date JAN. 17, 19-- Ship Via FREIGHT Terms NET		
QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT	
31 DOZ.	WINDOW SHADES	DOZ.	12 00	372	00
24 DOZ.	VENETIAN BLINDS	DOZ.	25 00	600	00
43 DOZ.	SHADE ROLLERS	DOZ.	11 00	473	00
TOTAL				1,445	00

Timed Drill

(1)
 549 × 41
 74 × 86
 241 × 45

(2)
 98 × 24
 721 × 35
 83 × 72

(3)
 883 × 50
 71 × 42
 77 × 81

(4)
 425 × 41
 981 × 12
 61 × 15

(5)
 326 × 16
 791 × 90
 93 × 31

(6)
 231 × 96
 960 × 95
 408 × 46

Timed Drill

1	
2	
3	
4	
5	
6	

JOB No. 22 (Cont'd.)

Invoices

A **sales invoice** is a list of merchandise that a business has sold to a customer. A **purchase invoice** is a list of merchandise that a business has bought.

In many offices sales invoices are verified on the calculator after they have been prepared on a billing machine. To verify the invoice in Problem (10), follow the steps given below.

Standard Calculator

Multiply the Quantity by the Unit Price in the usual manner. Do not clear the dials after each extension. Allow the amounts of the extensions to accumulate in the answer dials until the problem is completed.

If your total is the same as that on the invoice, each of the extensions is probably correct.

If your total is different from that on the invoice, check each extension individually to find the error.

Duplex Calculator

Note the amount of each extension as it is completed and transfer it to the upper dials, allowing the extensions to accumulate until the problem is completed.

Timed Drill

Do Timed Drill Problems (1) to (6) in the usual manner.



SPEED DRILL

Multiplication of Four-Digit Multiplicands

This drill contains 30 problems of 15 strokes each, a total of 450 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

- Complete each problem once, writing the answer in the space alongside the problem.
- Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - If the second answer is not the same as the first, write the second answer directly below the first answer.
- Record in the Time Record at the right the time that was required to complete the drill.
- Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
- When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 23
SPEED DRILL

Name _____
Period _____ Date _____

No. of Errors _____
Rating _____

- | | |
|--------------------------------|---------------------------------|
| (1) $1,439 \times 69 =$ _____ | (11) $4,197 \times 528 =$ _____ |
| (2) $7,183 \times 276 =$ _____ | (12) $3,636 \times 78 =$ _____ |
| (3) $5,381 \times 483 =$ _____ | (13) $2,719 \times 555 =$ _____ |
| (4) $6,914 \times 582 =$ _____ | (14) $7,145 \times 294 =$ _____ |
| (5) $2,387 \times 375 =$ _____ | (15) $2,197 \times 384 =$ _____ |
| (6) $1,267 \times 96 =$ _____ | (16) $1,349 \times 924 =$ _____ |
| (7) $4,129 \times 636 =$ _____ | (17) $2,277 \times 393 =$ _____ |
| (8) $8,521 \times 555 =$ _____ | (18) $3,095 \times 96 =$ _____ |
| (9) $1,956 \times 834 =$ _____ | (19) $3,594 \times 573 =$ _____ |
| (10) $2,087 \times 87 =$ _____ | (20) $1,098 \times 249 =$ _____ |

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Answers		Answers	
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

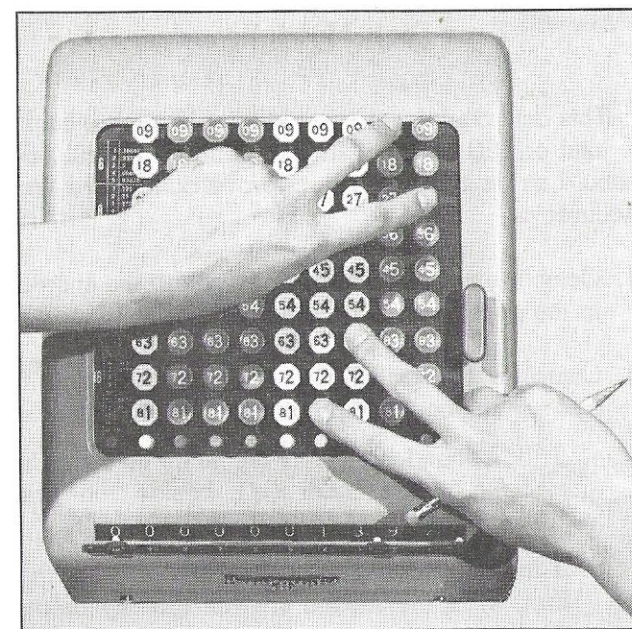
JOB No. 23 (Cont'd.)

- (21) $2,019 \times 78 =$ _____
- (22) $1,990 \times 609 =$ _____
- (23) $3,856 \times 348 =$ _____
- (24) $7,521 \times 433 =$ _____
- (25) $4,019 \times 69 =$ _____
- (26) $4,932 \times 726 =$ _____
- (27) $2,148 \times 35 =$ _____
- (28) $6,529 \times 82 =$ _____
- (29) $2,277 \times 78 =$ _____
- (30) $1,438 \times 5,460 =$ _____

Answers

21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

JOB No. 23 (Cont'd.)



Cross Hand Fingering

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 15 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 15 by number of correct answers)
Gross strokes a minute..... (Divide gross strokes by 3)	Net strokes a minute..... (Divide net strokes by 3)

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

Warm-Up Drill

Complete Warm-Up Drill E, page 61. Compute strokes and record results in the usual manner.

Fixed Decimal

When it is necessary to accumulate the results of successive multiplications in a problem containing mixed numbers (whole numbers and fractions), the decimal point is fixed at a place on the keyboard that will allow ample space to the right of it for all decimal accumulations and ample space to the left of it for all whole number accumulations.

Place the decimal pointer in the proper position:

a. 8- or 9-Column Calculator:

Place the decimal pointer between the fifth and sixth (from the right) columns of keys.

b. 5-Column Calculator:

Place the decimal pointer between the third and fourth (from the right) columns of keys.

Standard Calculator

(Duplex Calculator: See next page.)

1. Hold the multiplicand of the first pair of factors in the proper columns around the decimal point (whole numbers to the left of the decimal point; decimals to the right of the decimal point) and multiply by the multiplier.
2. Without clearing the machine, multiply all other pairs of factors in the problem using the same method.

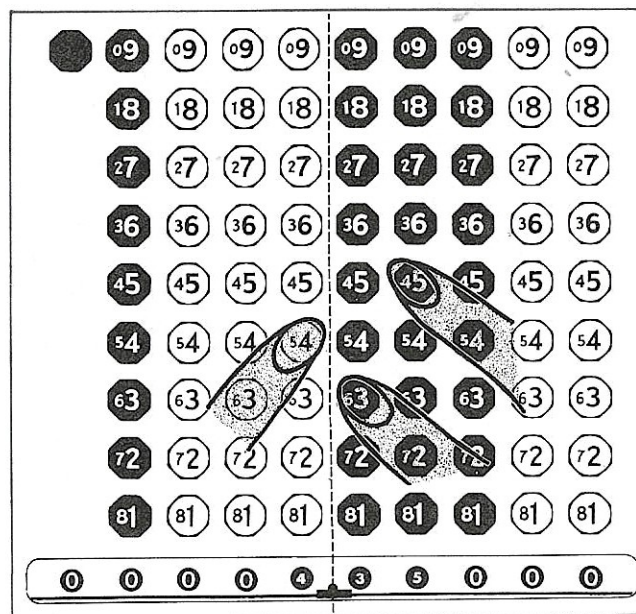
JOB No. 24

MULTIPLICATION

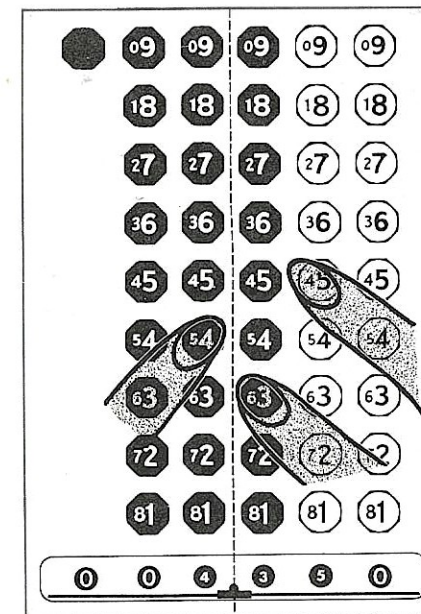
Name _____

Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____



9-Column Calculator
Fixed Decimal Point



5-Column Calculator
Fixed Decimal Point

To Complete Problem(1):

1. Place the decimal pointer in its proper position.
2. Hold 4.35 in the proper columns around the decimal point (4 to the left of the decimal point; 35 to the right of the decimal point) and multiply by 6. The dials now read 26.1.

(1)

$$\begin{array}{r} 4.35 \times 6 \\ 21.26 \times 1 \\ \hline 4.125 \times 3 \\ \hline \end{array}$$

(2)

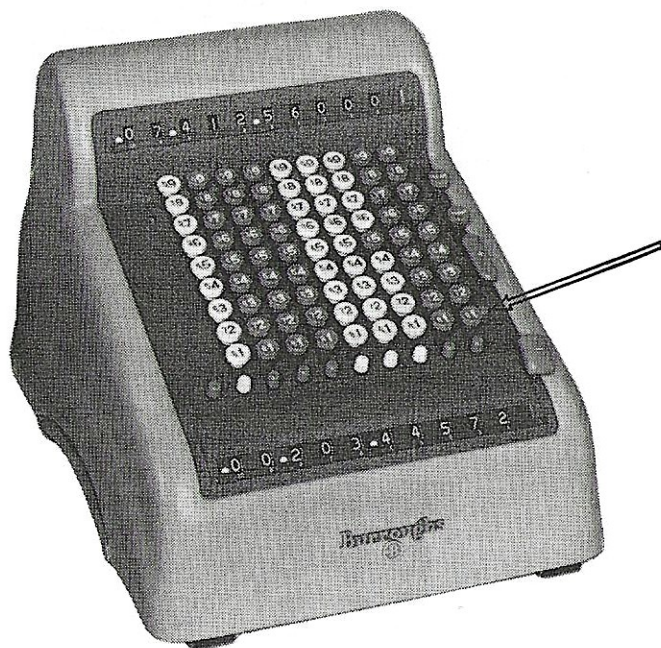
$$\begin{array}{r} 75.4 \times 3 \\ 6.725 \times 5 \\ \hline 87.5 \times 6 \\ \hline \end{array}$$

(3)

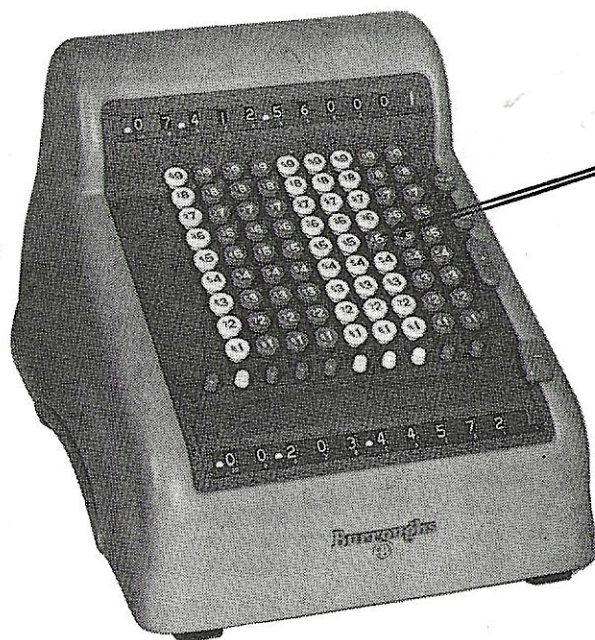
$$\begin{array}{r} 4.755 \times 3 \\ 15.5 \times 6 \\ \hline 43.25 \times 8 \\ \hline \end{array}$$

Answers

1	
2	
3	



Decimal Nontransfer Key



Full-Cent Key

Duplex Calculator

It is possible to find the individual product of each pair of factors and accumulate the products for the total.

1. Multiply by the first pair of factors. The product will appear in the lower dials.

In many business operations, such as when using dollars and cents, it is desirable to accumulate only two decimal places. To accumulate only two decimal places:

- a. Engage the decimal nontransfer key.
- b. If the product has more than two decimals in the lower dials (in Problem 1 the product of the third pair of factors is 12.375), depress the full-cent key. If the thousandths decimal is 5 or above, 1 will be added to the hundredths decimal.

2. Depress the lower-to-upper dials transfer key and the first product (whole number and first two decimals) will transfer to the upper dials.

3. Multiply the remaining pairs of factors in the problem using the same method.

8- or 9-Column Calculator:

(4a)

$$\begin{array}{r} 804.75 \times 6 \\ 4.26 \times 8 \\ 4.125 \times 3 \\ 403.5 \times 8 \\ \hline \end{array}$$

(5a)

$$\begin{array}{r} 4.75 \times 3 \\ 315.5 \times 6 \\ 43.25 \times 8 \\ 212.5 \times 5 \\ \hline \end{array}$$

(6a)

$$\begin{array}{r} 75.5 \times 3 \\ 67.25 \times 5 \\ 787.5 \times 6 \\ 75.25 \times 8 \\ \hline \end{array}$$

Answers

4a	
5a	
6a	

5-Column Calculator:

(4b)

$$\begin{array}{r} 9.66 \times 6 \\ 18.4 \times 8 \\ 5.088 \times 7 \\ .88 \times 1 \\ \hline \end{array}$$

(5b)

$$\begin{array}{r} 26.6 \times 7 \\ 2.512 \times 3 \\ 6.883 \times 6 \\ 31.25 \times 8 \\ \hline \end{array}$$

(6b)

$$\begin{array}{r} 50 \times 4 \\ 2.924 \times 5 \\ .203 \times 9 \\ 4.10 \times 2 \\ \hline \end{array}$$

Answers

4b	
5b	
6b	

JOB No. 24 (Cont'd.)

Warm-Up Drill E

During the first five minutes of the period do Warm-Up Drill E below, following the usual procedure. Each problem contains 10 strokes.

Standard Calculator

(1a)	(2a)	(3a)
43.98	47.81	90.39
<u>-4.13</u>	<u>-2.15</u>	<u>-15.34</u>
(4a)	(5a)	(6a)
88.93	17.19	62.09
<u>-.37</u>	<u>-4.32</u>	<u>-17.76</u>
(7a)	(8a)	(9a)
66.74	88.37	7.69
<u>-.28</u>	<u>-9.31</u>	<u>-2.33</u>

Duplex Calculator

(1b)	(2b)	(3b)
42.93	46.01	51.38
<u>-1.35</u>	<u>-10.72</u>	<u>-1.06</u>
(4b)	(5b)	(6b)
77.08	30.66	9.86
<u>-3.20</u>	<u>-5.13</u>	<u>-.25</u>
(7b)	(8b)	(9b)
9.87	12.33	2.61
<u>-.25</u>	<u>-7.44</u>	<u>-.77</u>

JOB No. 24 (Cont'd.)

Name _____

In the sales invoice below, multiply each quantity by the Unit Price and record the product in the Amount column. Add the Amount column to secure the Total. Check the accuracy of your total by accumulating the results of your successive multiplications.

DANIELS DISTRIBUTING COMPANY 1369 River Drive Milwaukee 12, Wisconsin				INVOICE 33022	
CUST. ORDER NO.	SALESMAN	OUR ORDER NO.	DATE		
16-5589	J. Long	6834	5/18/19--		
SOLD TO			SHIP TO:		
Campus Supply Store			Same		
1306 East Main					
Columbus, Ohio					
SHIP VIA		F.O.B.	TERMS		
Parcel Post			2/10, n/30		
QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT	
6 doz.	#368 Envelopes	doz.	16		
4 doz.	#358 Pencils	doz.	42		
5 doz.	#433 Pen sets	doz.	273		
TOTAL					

Answers

10	
11	
12	
13	

Timed Drill

8- or 9-Column Calculator:

(1a)

$$\begin{array}{r} 61.8 \times 6 \\ 901.64 \times 4 \\ 980.15 \times 4 \\ 84.01 \times 8 \\ \hline \end{array}$$

(2a)

$$\begin{array}{r} 94.62 \times 9 \\ 4.177 \times 7 \\ 404.38 \times 3 \\ 763.5 \times 5 \\ \hline \end{array}$$

(3a)

$$\begin{array}{r} 1,462. \times 6 \\ 493.6 \times 2 \\ 1.389 \times 6 \\ 49.68 \times 9 \\ \hline \end{array}$$

Answers

1a

2a

3a

5-Column Calculator:

(1b)

$$\begin{array}{r} 7.19 \times 3 \\ 57.6 \times 7 \\ 36.14 \times 9 \\ 9.506 \times 6 \\ \hline \end{array}$$

(2b)

$$\begin{array}{r} 9.1 \times 2 \\ 3.032 \times 6 \\ 5.89 \times 9 \\ 1.92 \times 4 \\ \hline \end{array}$$

(3b)

$$\begin{array}{r} 4.01 \times 9 \\ 90.21 \times 8 \\ 6.732 \times 5 \\ 53 \times 4 \\ \hline \end{array}$$

Answers

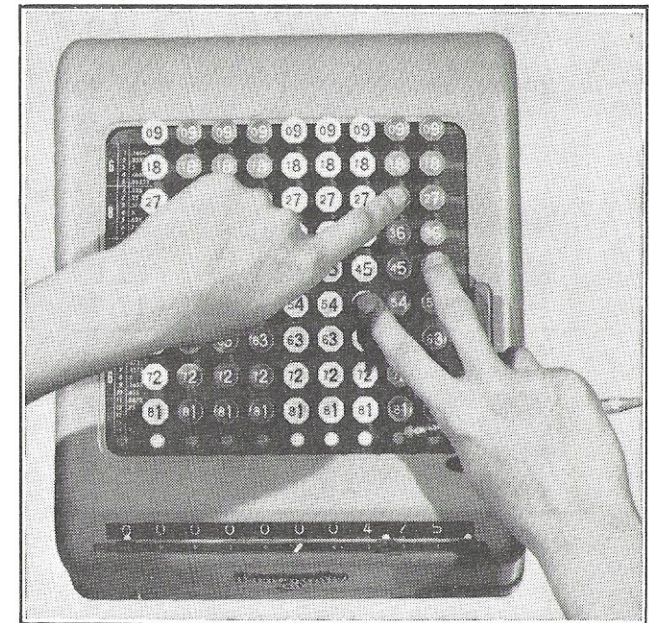
1b

2b

3b

Timed Drill

Do Timed Drill Problems (1) to (3) in the usual manner.



Interposed Fingering



MULTIPLICATION

Left-to-Right
Using a Fixed Decimal

Warm-Up Drill

Complete Warm-Up Drill D, page 54. Compute strokes and record results in the usual manner.

Left-to-Right Multiplication Using a Fixed Decimal

In Job No. 24 multiplication was performed around a fixed decimal point with one digit in the multiplier. When there is more than one digit in the multiplier that also has decimals, it is easier to multiply from left to right rather than from right to left.

- Place the decimal pointer in a fixed position:

a. 8- or 9-Column Calculator:

Between the fifth and sixth (from the right) columns of keys;

b. 5-Column Calculator:

Between the third and fourth (from the right) columns of keys.

- Hold the multiplicand of the first pair of factors in the proper columns around the decimal pointer, but do not multiply.
- Move your fingers to the left as many places as there are **whole number digits** in the multiplier, **less one digit**.
- Multiply by the first digit (from the left) in the multiplier. Do not clear the machine.
- Move one place to the right and multiply by the second digit in the multiplier.
- Without clearing the machine, multiply all other pairs of factors in the problem using the same method.

JOB No. 25

MULTIPLICATION

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

To Complete Problem (1):

- Place the decimal pointer in its proper position.
- Place your fingers over .48, but do not depress the keys.
- Move one place to the left because there are two whole number digits (3 and 6) in the multiplier, **less one digit**.
- Multiply by 3. The dials read 14.4. Do not clear the machine.
- Move one place to the right. Multiply by 6. The dials now read 17.28.
- Without clearing the machine, multiply all other pairs of factors in the problem using the same method:
 - Multiply 2.93 by 4 and then by 5. The dials read 149.13.
 - Multiply .39 by 1, then 2, and then 4. (Move **two** places to the left before multiplying by the 1). The dials read 197.49, which is the final answer.

(1)

$$\begin{array}{r} .48 \times 36 \\ 2.93 \times 45 \\ .39 \times 124 \\ \hline \end{array}$$

(2)

$$\begin{array}{r} 3.46 \times 23 \\ 5.67 \times 45 \\ .89 \times 26 \\ \hline \end{array}$$

(3)

$$\begin{array}{r} 53.35 \times 4 \\ 3.24 \times 25 \\ 2.95 \times 36 \\ \hline \end{array}$$

(4)

$$\begin{array}{r} 4.68 \times 35 \\ .58 \times 34 \\ 53.00 \times 4 \\ 4.05 \times 24 \\ \hline \end{array}$$

(5)

$$\begin{array}{r} 4.87 \times 6 \\ 24.56 \times 3 \\ .89 \times 42 \\ .145 \times 36 \\ \hline \end{array}$$

(6)

$$\begin{array}{r} 6.81 \times 22 \\ 4.56 \times 33 \\ 4.78 \times 45 \\ 8.35 \times 55 \\ \hline \end{array}$$

Answers

1	
2	
3	
4	
5	
6	

JOB No. 25 (Cont'd.)

(7)

DANIELS DISTRIBUTING COMPANY 1369 River Drive Milwaukee 12, Wisconsin				INVOICE 10107	
CUST. ORDER NO. 8398	SALESMAN C. Lewis	OUR ORDER NO. T-1459	DATE 2/6/19--		
SOLD TO Office Supply Center			SHIP TO Same		
89 West Street					
Richmond 31, Virginia					
SHIP VIA Truck		F.O.B. Richmond	TERMS Net		
QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT	
12 doz.	Lined pads #1162	doz.	1 65	19	80
45 doz.	Envelopes #1145	doz.	2 43	109	35
12 pkgs.	Shelf paper #1159	pkg.	36	4	32
39 doz.	Pencils #1189	doz.	62	24	18
18	Fountain pens #1132	ea.	1 28	23	04
TOTAL				180	69

8- or 9-Column Calculator: (5-column calculator problems are on next page).

(8a)

$$\begin{array}{r}
 4.52 \times 362 \frac{1}{2} \\
 .67 \times 47 \frac{1}{4} \\
 2.89 \times 23 \frac{3}{4} \\
 1.61 \times 123 \frac{1}{8}
 \end{array}$$

(9a)

$$\begin{array}{r}
 32.10 \times 2 \frac{1}{2} \\
 2.23 \times 7 \frac{1}{5} \\
 4.00 \times 23 \frac{7}{8} \\
 2.50 \times 87 \frac{1}{4}
 \end{array}$$

(10a)

$$\begin{array}{r}
 62.47 \times 27 \frac{3}{4} \\
 4.26 \times 81 \frac{3}{8} \\
 72.50 \times 18 \frac{1}{2} \\
 91.27 \times 7 \frac{1}{4}
 \end{array}$$

Answers	
8a	
9a	
10a	

JOB No. 25 (Cont'd.)

Summary of Left-to-Right Multiplication

1. Hold the multiplicand around the fixed decimal point.
2. Move fingers to the left as many places as there are **whole number digits in the multiplier, less one digit.**

Digits in Multiplier	Move Fingers
4 whole numbers	3 places to left
3 whole numbers	2 places to left
2 whole numbers	1 place to left
1 whole number	Do not move
tenths (.4)	1 place to right
hundredths (.04)	2 places to right

3. Multiply from left to right.

To Complete Problem (7):

When checking invoices, individual answers are not as important as the total of the extensions.

Accumulate the extensions over a fixed decimal point, multiplying from left to right.

1. If your Total agrees with the Total on the invoice, place a check mark (✓) to the right of the Total on the invoice.
2. If your Total does not agree with the Total on the invoice, multiply each extension until the error is found. If there is an error on the invoice, correct the extensions and the Total.

To Complete Problems (8) to (10):

Change fractions to decimal equivalents and multiply as usual. If necessary, see Job 21. Carry out all answers to three decimal places and round to two decimal places.

Remember to move your fingers holding the multiplicand to the left as many places as there are **whole number digits in the multiplier, less one digit.**

JOB No. 25 (Cont'd.)

JOB No. 25 (Cont'd.)

Name _____

5-Column Calculator:

(8b)	(9b)	(10b)	Answers
5.12 × 34 1/2	4.25 × 56	2.25 × 42 1/5	8b
4.20 × 4 1/4	23.47 × 4 1/2	6.26 × 25 3/5	9b
6.90 × 5 3/4	1.92 × 31 1/2	.48 × 126 1/4	10b
20.50 × 6 1/2	45.96 × 2 1/2	.82 × 35 1/2	

5-, 8-, and 9-Column Calculators, Complete Problem (11).

(11)

To Complete Problem (11):

Accumulate the extensions over a fixed decimal point, multiplying from left to right. In some problems there may be a difference of one or two cents between your answer and the invoice total due to rounding the decimals. Disregard this slight difference in determining the accuracy of the invoice.

1. If your Total agrees with the Total on the invoice, place a check mark (✓) to the right of the Total on the invoice.
2. If your Total does not agree with the Total on the invoice, multiply each extension until the error is found. If there is an error on the invoice, correct the extensions and the Total.

DANIELS DISTRIBUTING COMPANY						INVOICE		
1369 River Drive								
Milwaukee 12, Wisconsin								
CUST. ORDER NO.		SALESMAN		OUR ORDER NO.		DATE		
6421		R.D. Ross		T-1502		2/11/19-		
SOLD TO Sanders Brothers, Inc.						SHIP TO Same		
4303 Canton Street								
Newark 9, New Jersey								
SHIP VIA		F.O.B.		TERMS				
Truck		Milwaukee		2/10, n/30				
QUANTITY	DESCRIPTION					UNIT	UNIT PRICE	AMOUNT
4 1/2 doz.	Ink #1172					doz.	92	4 14
8 1/4 doz.	Rulers #1128					doz.	73	6 02
13 1/4 doz.	Typewriter erasers #1178					doz.	87	11 96
6 1/2 doz.	Analysis pads #EZ 403					doz.	2 68	17 42
TOTAL								39 54

JOB No. 25 (Cont'd.)

Timed Drill

8- or 9-Column Calculator:

(1a)

$$\begin{array}{r} 9.46 \times 45 \\ 58.62 \times 4 \\ 84.90 \times 18 \\ 1.609 \times 51 \\ \hline \end{array}$$

(2a)

$$\begin{array}{r} 1.328 \times 93 \\ 43.8 \times 72 \\ 2.125 \times 23 \\ 7.45 \times 61 \\ \hline \end{array}$$

(3a)

$$\begin{array}{r} 4.745 \times 23 \\ 6.435 \times 39 \\ 5.89 \times 247 \\ 175.5 \times 26 \\ \hline \end{array}$$

(4a)

$$\begin{array}{r} 43 \frac{1}{2} \times .24 \\ 7 \frac{1}{8} \times 1.20 \\ 86 \frac{1}{4} \times .56 \\ 5 \frac{3}{4} \times .30 \\ \hline \end{array}$$

(5a)

$$\begin{array}{r} 4 \frac{1}{4} \times .56 \\ 1/12 \times 1.60 \\ 6 \frac{1}{5} \times 5.65 \\ 29 \frac{1}{2} \times 2.30 \\ \hline \end{array}$$

(6a)

$$\begin{array}{r} 4.67 \times 7 \frac{1}{2} \\ 6.60 \times 26 \frac{3}{4} \\ 32.00 \times 4 \frac{7}{8} \\ 4.04 \times 21 \frac{1}{5} \\ \hline \end{array}$$

5-Column Calculator:

(1b)

$$\begin{array}{r} 7.60 \times 3 \\ 4.80 \times 78 \\ 3.98 \times 45 \\ 27.15 \times 2 \\ \hline \end{array}$$

(2b)

$$\begin{array}{r} 4.78 \times 35 \\ 5.22 \times 45 \\ 2.95 \times 43 \\ 9.53 \times 21 \\ \hline \end{array}$$

(3b)

$$\begin{array}{r} 45.06 \times 5 \\ 5.78 \times 23 \\ .567 \times 6 \\ 2.39 \times 34 \\ \hline \end{array}$$

(4b)

$$\begin{array}{r} 47 \frac{1}{2} \times .35 \\ 15 \frac{1}{5} \times 7.8 \\ 4 \frac{1}{8} \times 6 \\ 5 \frac{3}{4} \times 3 \\ \hline \end{array}$$

(5b)

$$\begin{array}{r} 7.89 \times 4 \frac{3}{5} \\ .46 \times 144 \frac{1}{2} \\ 6.06 \times 25 \frac{1}{5} \\ 32.00 \times 1 \frac{3}{4} \\ \hline \end{array}$$

(6b)

$$\begin{array}{r} 5.40 \times 84 \frac{1}{2} \\ 4.64 \times 5 \frac{1}{5} \\ 6.45 \times 35 \frac{1}{2} \\ 34.76 \times 6 \frac{2}{5} \\ \hline \end{array}$$

Timed Drill

1a

2a

3a

4a

5a

6a

JOB No. 25 (Cont'd.)

Timed Drill

Do Timed Drill Problems (1) to (6) in the usual manner.

09	09	09	09	09	09	09	09	09	09
18	18	18	18	18	18	18	18	18	18
27	27	27	27	27	27	27	27	27	27
36	36	36	36	36	36	36	36	36	36
45	45	45	45	45	45	45	45	45	45
54	54	54	54	54	54	54	54	54	54
63	63	63	63	63	63	63	63	63	63
72	72	72	72	72	72	72	72	72	72
81	81	81	81	81	81	81	81	81	81
0	0	0	0	4	3	5	0	0	0

9-Column Calculator — Fixed Decimal Point

Timed Drill

1b

2b

3b

4b

5b

6b

09	09	09	09	09
18	18	18	18	18
27	27	27	27	27
36	36	36	36	36
45	45	45	45	45
54	54	54	54	54
63	63	63	63	63
72	72	72	72	72
81	81	81	81	81
0	0	4	3	5

5-Column Calculator — Fixed Decimal Point

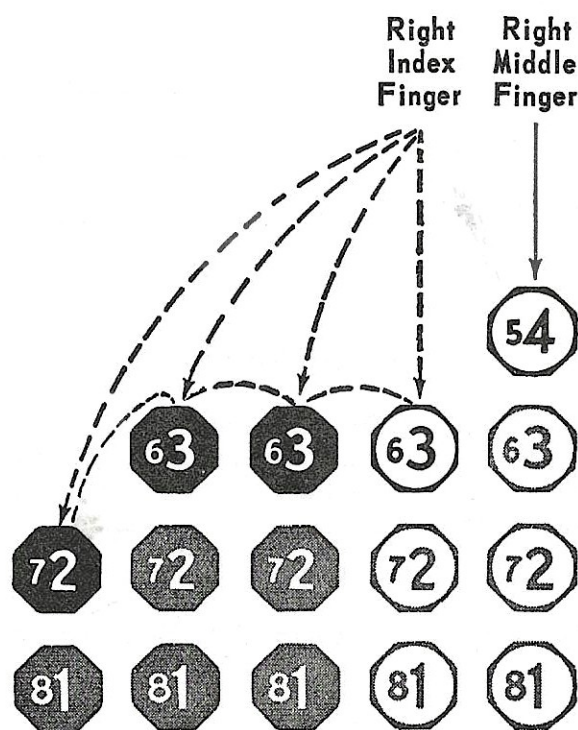
TOUCH ADDITION Five-Digit Numbers

Warm-Up Drill

Complete Warm-Up Drill F, page 68. Compute strokes and record results in the usual manner.

Touch Addition Five-Digit Numbers

1. Begin at the left of the number.
2. Strike keys for the first four digits with the right index finger.
3. Strike the units digit with the right middle finger.
4. Strive for an even, rhythmic action.



JOB No. 26

TOUCH ADDITION

Name _____

Period _____ Date _____

No. of Errors _____

Strokes in _____

Warm-Up Drill _____

Rating _____

To Complete Problem (1):

1. Strike 200.00, 30.00, 3.00, and .30 with the right index finger.
2. Strike 4 with the right middle finger.
3. Before proceeding with Problem (1), strike 233.34 until an even, rhythmic action is achieved.

(1)

233.34
348.26
730.93
621.37
930.28
583.54
605.83
731.16
426.35
113.74
421.27

(2)

307.93
136.20
147.59
628.93
471.09
627.75
239.42
580.31
167.84
401.32
148.65

(3)

594.32
62.10
.28
41.37
13.39
5.68
.02
472.52
3.21
983.44
7.62

(4)

8.41
37.25
695.41
30.82
198.43
.56
9.31
72.21
583.42
67.78
104.93

Answers

1	
2	
3	
4	
5	
6	
7	
8	

(5)

123.34
123.34
233.34
333.32
233.34
123.34
234.34
333.35
323.34
323.34
123.33

(6)

223.36
123.33
223.39
123.32
212.22
112.21
712.37
634.33
123.21
212.12
222.34

(7)

5.60
93.08
368.57
7.94
.14
497.21
.06
612.62
3.59
.35
16.83

(8)

458.34
32.21
273.62
.91
3.08
.15
91.02
372.64
5.60
.07
572.64

(9)

CITY NATIONAL BANK		
ACCOUNT NUMBER		
4 9 8 - 6 6 3 0 2		
H. PUGH COMPANY		
PLEASE PRINT EXACT TITLE OF ACCOUNT		
5TH & MAIN		
Cincinnati, O. MAY 3, 19--		
Checks and other items are received for deposit subject to the terms and conditions of this bank's collection agreement.		
CURRENCY	571	46
SILVER	12	56
CHECKS 41-633	533	83
2 41-575	280	00
3 41-857	563	82
4 41-946	61	40
5 45-7	498	99
6 45-84	368	22
7 46-341	522	40
8 46-348	119	76
9 52-39	704	05
10 52-95	850	44
11 53-72	21	81
12		
13		
TOTAL →		

9

Timed Drill

(1)	(2)	(3)	(4)	(5)
.73	33.34	9.50	9.50	143.00
7.46	.45	2.08	2.08	4.22
928.52	9.84	.21	.21	321.04
6.23	4.36	.86	.86	44.00
34.95	3.04	558.95	758.95	72.01
855.00	944.56	77.83	77.83	910.33
.68	32.21	832.18	132.18	34.55
9.31	811.23	67.40	467.40	498.04
8.02	33.20	645.34	45.34	43.00
67.70	6.24	.35	.25	36.05
526.46	4.59	8.54	8.54	259.04
734.18	543.62	828.80	928.80	46.50

(10)

CITY NATIONAL BANK		
ACCOUNT NUMBER		
4 9 8 - 6 6 3 0 2		
H. PUGH COMPANY		
PLEASE PRINT EXACT TITLE OF ACCOUNT		
5TH & MAIN		
Cincinnati, O. MAY 4, 19--		
Checks and other items are received for deposit subject to the terms and conditions of this bank's collection agreement.		
CURRENCY	262	59
SILVER	6	00
CHECKS 41-67	784	79
2 42-76	196	45
3 42-111	153	21
4 42-654	927	75
5 45-22	459	49
6 46-566	534	24
7 47-261	950	55
8 47-278	788	79
9 51-485	463	47
10 51-688	509	84
11 52-97	145	10
12		
13		
TOTAL →		

10

Timed Drill

1
2
3
4
5

Warm-Up Drill F

During the first five minutes of the period do Warm-Up Drill F below, following the usual procedure. Each problem contains 15 strokes.

- (1) $3,434.4 \div 8.1 =$ _____
- (2) $73.15 \div 13.3 =$ _____
- (3) $35.454 \div .57 =$ _____
- (4) $311.15 \div 24.5 =$ _____
- (5) $1,543.3 \div .61 =$ _____
- (6) $54.075 \div .75 =$ _____
- (7) $4,243.4 \div 9.8 =$ _____
- (8) $593.05 \div 4.09 =$ _____
- (9) $190.8 \div 4.50 =$ _____
- (10) $330.75 \div 2.70 =$ _____

Deposit Ticket

The deposit ticket lists the currency, silver, and each check being deposited in the checking account. Find the total amount deposited in Problems (9) and (10).

Timed Drill

Do Timed Drill Problems (1) to (5) in the usual manner.

27

SPEED DRILL Five-Column Addition

This drill contains 15 problems of 60 strokes each, a total of 900 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

- Complete each problem once, writing the answer in the space directly below the problem.
- Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - If the second answer is not the same as the first, write the second answer directly below the first answer.
- Record in the Time Record at the right the time that was required to complete the drill.
- Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
- When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 27
SPEED DRILL

Name _____
Period _____ Date _____

No. of Errors _____
Rating _____

(1)	(2)	(3)	(4)	(5)
277.85	7.76	28.83	674.79	349.30
3.60	50.07	1.86	5.14	42.62
4.69	6.49	803.66	60.13	2.98
455.81	2.76	6.24	314.25	540.35
9.50	33.44	.85	.20	9.72
68.15	3.27	28.87	908.76	8.35
.54	654.74	6.28	1.92	685.96
797.21	1.63	608.64	599.10	8.75
2.55	991.42	9.17	4.93	50.49
5.66	5.54	2.25	674.75	8.98
765.94	7.18	302.95	45.18	.43
5.06	894.51	41.50	4.70	545.47
(6)	(7)	(8)	(9)	(10)
3.68	.07	67.06	892.01	731.20
119.51	9.60	1.45	40.50	.94
4.97	50.38	78.74	227.50	6.27
.71	721.19	4.91	96.99	30.98
867.93	1.52	70.30	.05	474.52
10.26	56.90	902.66	6.36	6.97
2.12	99.95	.45	657.07	70.50
3.98	8.64	119.43	2.81	.09
72.89	46.30	2.79	500.37	898.75
.64	687.48	178.90	51.70	2.62
9.06	83.70	.84	819.82	78.98
124.73	4.66	446.29	56.19	.87

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Answers	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 27 (Cont'd.)

(11)	(12)	(13)	(14)	(15)	Answers
529.27	.04	13.55	9.38	256.79	11
2.23	2.86	408.70	314.00	5.42	12
562.47	114.49	2.94	7.17	13.00	13
.03	6.31	764.71	8.72	427.65	14
192.48	809.52	2.31	266.69	79.14	15
4.33	2.03	61.70	764.87	5.58	
90.44	395.12	2.68	6.12	471.62	
825.33	4.62	829.14	7.08	10.47	
4.86	769.46	5.63	20.69	3.48	
973.73	2.19	2.46	.05	90.95	
6.26	191.87	80.13	611.91	309.79	
.79	6.18	354.88	40.25	2.15	



Correct Position at Calculator

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 60 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 60 by number of correct answers)
Gross strokes a minute..... (Divide gross strokes by 3)	Net strokes a minute..... (Divide net strokes by 3)

JOB No. 27 (Cont'd.)

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

Warm-Up Drill

Complete Warm-Up Drill G, page 72. Compute strokes and record results in the usual manner.

Pricing by the Hundred (C)

C means 100. To figure or to check problems that contain articles priced by the hundred, the quantity is pointed off two decimal places from the right and multiplication is performed as usual.

Pricing by the Thousands (M)

M means 1,000. When articles are priced by the thousand, the quantity is pointed off three decimal places from the right and multiplication is performed as usual.

Pricing by the Hundredweight (CWT.)

CWT. means hundredweight. When articles are priced by the hundredweight, the quantity is pointed off two decimal places from the right and multiplication is performed as usual.

JOB No. 28
INVENTORIES

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

Pricing by the Hundred

(1) 470 at \$6.78 per C = $4.70 \times 6.78 =$ _____

(2) 646 at 4.60 per C = $6.46 \times 4.60 =$ _____

(3) 489 at 5.80 per C = _____

(4) 330 at 3.47 per C = _____

(5) 875 at 4.56 per C = _____

Pricing by the Thousand

(6) 4,500 at \$2.68 per M = $4.500 \times 2.68 =$ _____

(7) 1,460 at 3.67 per M = $1.460 \times 3.67 =$ _____

(8) 6,730 at 5.80 per M = _____

(9) 3,425 at 56.00 per M = _____

(10) 25,700 at .35 per M = _____

Pricing by the Hundredweight (CWT.)

(11) 7,500 lbs. at \$2.28 per CWT. = $75.00 \times 2.28 =$ _____

(12) 3,630 lbs. at .56 per CWT. = $36.30 \times .56 =$ _____

(13) 7,700 lbs. at 4.22 per CWT. = _____

(14) 6,700 lbs. at 7.13 per CWT. = _____

(15) 5,100 lbs. at .93 per CWT. = _____

To Complete Problem (1):

1. Consider 470 as 4.70 and multiply as usual.

2. The answer is \$31.87.

To Complete Problem (6):

1. Consider 4,500 as 4.500 and multiply as usual.

2. The answer is \$12.06.

To Complete Problem (11):

1. Consider 7,500 as 75.00 and multiply as usual.

2. The answer is \$171.

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

JOB No. 28 (Cont'd.)

GLOBE OFFICE SUPPLIES
604 STATE AVE.
CLEVELAND 5, OHIO

E. G. Halvors & Co.
2808 Third Avenue
Philadelphia 16, Pa.

Invoice No. 456
Date 12/16/19--
Ship Via Truck
Terms 2/10, n/30

QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT
450	Ledger cards	C	2.20	
500	Statements w/carbon	C	7.22	
4,500	Printed forms	M	12.14	
3,500	Post cards	M	8.50	
350	Index cards	C	2.84	
650	Ledger sheets	C	2.23	
TOTAL				

Answers

16	
17	
18	
19	
20	
21	
22	

JOB No. 28 (Cont'd.)

Warm-Up Drill G

During the first five minutes of the period do Warm-Up Drill G below, following the usual procedure. Each problem contains 15 strokes.

- (1) $87.2 \times 9.42 =$ _____
 (2) $88.1 \times 4.74 =$ _____
 (3) $1.78 \times 71.7 =$ _____
 (4) $62.8 \times 7.53 =$ _____
 (5) $6.67 \times 82.5 =$ _____
 (6) $27.8 \times 1.77 =$ _____
 (7) $9.305 \times 87. =$ _____
 (8) $8.9 \times 91.14 =$ _____
 (9) $8.24 \times 55.5 =$ _____
 (10) $71.25 \times 9.6 =$ _____
 (11) $8.76 \times 19.5 =$ _____
 (12) $9.18 \times 45.6 =$ _____
 (13) $7.08 \times 73.5 =$ _____
 (14) $8.9 \times 8.7 =$ _____
 (15) $69. \times 5.163 =$ _____

Sales Invoice

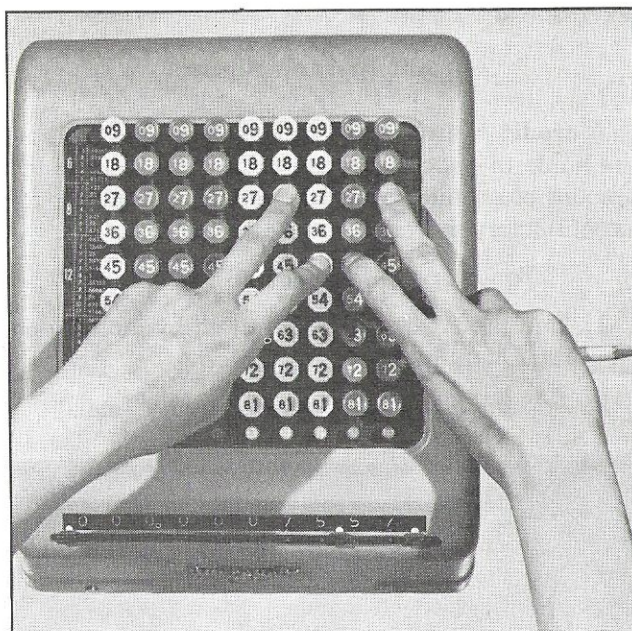
To Complete Problems (16) to (30):

- Find the Amount for each item by multiplying the Quantity by the Unit Price.
- Add the Amounts to determine the Total.

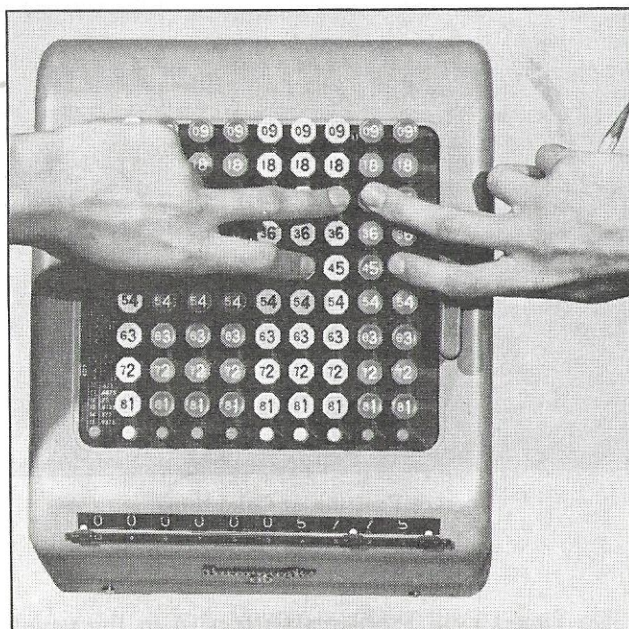
JOB No. 28 (Cont'd.)

JOB No. 28 (Cont'd.)

Name _____



Natural Fingering



Reverse Fingering

HARRIS OFFICE SUPPLY COMPANY				INVOICE	
3104 Baylor Avenue Phoenix 2, Arizona				4469	
CUST. ORDER NO.	SALESMAN	OUR ORDER NO.	DATE		
B-561	C. Patton	S-3456	3/24/19--		
SOLD TO			SHIP TO		
Simpson Stationery Store			Same		
Aberdeen Road					
Gunnison, Colorado					
SHIP VIA		F.O.B.	TERMS		
Express			Net		
QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT	
350	Manila envelopes, 9x12	C	3.40		
500	String-tie envelopes	C	4.60		
450	Ledger sheets	C	2.25		
650	Index cards	C	2.80		
500	Clasp envelopes	C	4.80		
2,500	Airmail envelopes	M	45.00		
3,500	Commercial envelopes	M	38.00		
TOTAL					

Answers

23	
24	
25	
26	
27	
28	
29	
30	

JOB No. 28 (Cont'd.)

CREDIT		MEMORANDUM		
<u>R. EWING COMPANY</u> 4216 32 Street Detroit 16, Michigan				
TO: C. S. SMITH, INC. 1364 38 STREET LANSING 5, MICHIGAN		NUMBER: <u>496</u> DATE: JANUARY 16, 19--		
QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT
350	5/16 x 3" MACHINE BOLTS	C	5.82	
375	1/2 x 7" MACHINE BOLTS	C	35.15	
3,500	3/8 x 5" CORRUGATED FASTENERS	M	2.42	
2,250	1/2 x 5" CORRUGATED FASTENERS	M	2.71	
	400LB NAILS #8 ^d BOX	CWT.	16.30	
	350LB NAILS #16 ^d BOX	CWT.	15.80	
TOTAL				

Answers

31	
32	
33	
34	
35	
36	
37	

Timed Drill

- | | | |
|-----------------------------------|---|-------|
| (1) 450 at \$8.19 per C | = | _____ |
| (2) 1,820 at \$1.35 per C | = | _____ |
| (3) 350 at \$3.02 per C | = | _____ |
| (4) 60 at \$9.24 per C | = | _____ |
| (5) 8,700 at \$1.64 per M | = | _____ |
| (6) 580 at \$8.93 per M | = | _____ |
| (7) 3,900 at \$7.23 per M | = | _____ |
| (8) 270 lbs. at \$2.70 per CWT. | = | _____ |
| (9) 7,210 lbs. at \$9.12 per CWT. | = | _____ |
| (10) 960 lbs. at \$3.89 per CWT. | = | _____ |

Timed Drill

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 28 (Cont'd.)

Credit Memorandums

A **credit memorandum** is a form used to show the value of goods returned to the supplier, or the amount of an allowance granted by a supplier for unsatisfactory merchandise that he has sold.

To Complete Problems (31) to (37):

1. Find the Amount for each item by multiplying the Quantity by the Unit Price.
2. Add the Amounts to determine the Total.



Correct Position at Calculator

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

Warm-Up Drill

Complete Warm-Up Drill E, page 61. Compute strokes and record results in the usual manner.

Compound Multiplication

Three or more factors* can be multiplied on a key-driven calculator without having to clear the dials after each operation. It is therefore unnecessary to write the product of the first multiplication when the amount is to be multiplied by another factor.

To complete problems involving compound multiplication:

1. Multiply the first two factors as usual. Do not clear the dials.
2. Multiply the product of the first two factors by the third factor, **less one**. Hold the units digit of the third factor (less one) over the left digit of the amount in the dials and multiply from left to right by each digit in the dials.

*A **factor** is any of the quantities which, when multiplied together, form a product.

JOB No. 29 COMPOUND MULTIPLICATION	Name _____	No. of Errors _____ Strokes in Warm-Up Drill _____ Rating _____
	Period _____ Date _____	

To Complete Problem (1):

1. Multiply 6 by 4. The product is 24.
2. Hold keys for 13 (14-1) in the second and third (from the right) rows of keys so that the 3 of 13 is over the 2 of 24 that appears in the dials.

- a. Multiply by 2.
- b. Move to the right and multiply by 4. The final product is 336.

The problem is solved in this manner because multiplication is repeated addition, and since 24 is already in the dials, it is necessary to add 24 only 13 more times.

24 (First product)
~~24~~ - 1 = 13
 24 (Already in dials)
 72 (24 × 3)
 240 (24 × 10)
 336 (Final product)

Answers

- | | |
|---------------------------------------|--|
| (1) $6 \times 4 \times 14 =$ _____ | (6) $832 \times 3 \times 59 =$ _____ |
| (2) $293 \times 7 \times 53 =$ _____ | (7) $1,000 \times 7 \times 80 =$ _____ |
| (3) $275 \times 4 \times 15 =$ _____ | (8) $78 \times 57 \times 58 =$ _____ |
| (4) $789 \times 12 \times 38 =$ _____ | (9) $4 \times 30 \times 110 =$ _____ |
| (5) $162 \times 3 \times 102 =$ _____ | (10) $19 \times 70 \times 16 =$ _____ |
| (11) $14 \times 60 \times 14 =$ _____ | |
| (12) $143 \times 6 \times 32 =$ _____ | |
| (13) $270 \times 12 \times 3 =$ _____ | |
| (14) $42 \times 3 \times 74 =$ _____ | |
| (15) $16 \times 24 \times 8 =$ _____ | |

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

JOB No. 29 (Cont'd.)

(16) $4.5 \times 6.7 \times .58 =$ _____

(17) $1.75 \times 4.6 \times 3.7 =$ _____

(18) $.35 \times 26 \times .024 =$ _____

(19) $2 \frac{1}{4} \times 34 \times 23 =$ _____

(20) $2.21 \times 2 \frac{3}{4} \times 5 =$ _____

Answers

16	
17	
18	
19	
20	

JOB No. 29 (Cont'd.)

Decimals

If any of the factors contain decimals:

1. Count the total number of decimals in all the factors.
2. Point off the total number of decimal places beginning at the right of the dials.
3. Multiply as usual for compound multiplication.

Invoices

To Complete Problems (21) to (26):

1. Multiply the Pieces by the Yardage to compute the Total Yardage.
2. Obtain the Amount by the compound method of multiplication. Multiply the Total Yardage by the Unit Price.
3. Determine the Total of the invoice by adding the extensions.

LENOWAY WHOLESALE COMPANY				INVOICE			
3248 Penn Avenue							
Pittsburgh, Pennsylvania				14187			
CUST. ORDER NO.		SALESMAN		OUR ORDER NO.		DATE	
A-4398		J. Brown		4893		4/16/19-	
SOLD TO				SHIP TO			
Whitwell Company				Same			
3915 Emory							
Lincoln, Nebraska							
SHIP VIA		F.O.B.		TERMS			
Express				Net			
PIECES	YARDAGE	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT		
4	76 $\frac{1}{2}$	A124 Celanese Red	yd.	48			
2	45 $\frac{1}{2}$	B23 Crepe Black	yd.	1 04			
6	7	A247 Novelty Wool Brown	yd.	1 63			
2	24	D1 Satin Black	yd.	1 84			
1	68 $\frac{1}{4}$	R124 Print Crepe	yd.	76			
TOTAL							

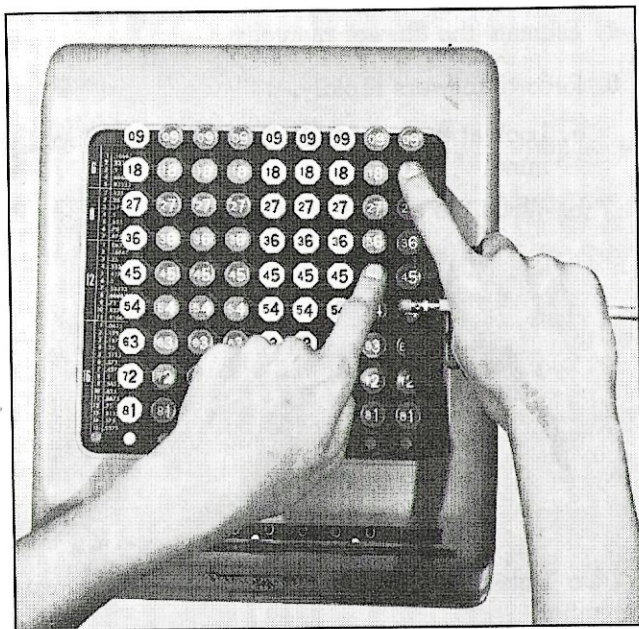
Answers

21	
22	
23	
24	
25	
26	

JOB No. 29 (Cont'd.)

To Complete Problems (27) to (30):

1. Multiply the Quantity by the Weight to get the Total Weight.
2. Multiply the Total Weight by the Unit Price to get the Amount.
3. Add the Amounts to get the Total.



To Complete Problems (31) to (40):

1. Multiply the No. of Bolts by the Yds. per Bolt to get the Total Yardage.
2. Multiply the Total Yardage by the Unit Price to get the Amount.
3. Add the Amounts to get the Total.

JOB No. 29 (Cont'd.)

Name _____

RANDALL WHOLESALE COMPANY				INVOICE	
3660 Palmer Avenue Detroit 11, Michigan				No. 5642	
CUST. ORDER NO.		SALESMAN	OUR ORDER NO.	DATE	
6598		L. Wilkins	4930	4/16/19--	
SOLD TO			SHIP TO		
Jenkins Meat Products			Same		
1910 Knoxville Street					
Memphis 14, Tennessee					
SHIP VIA		F.O.B.	TERMS		
Truck			2/10, n/30		
QUAN.	WEIGHT	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT
58	2 lbs.	Smoked Hams	lb.	78	
56	6 lbs.	Smoked Hams	lb.	73	
128	4 lbs.	Smoked Hams	lb.	75	
TOTAL					

Answers

27	
28	
29	
30	

LENOWAY WHOLESALE COMPANY				INVOICE	
3248 Penn Avenue Pittsburgh, Pennsylvania				21289	
CUST. ORDER NO.		SALESMAN	OUR ORDER NO.	DATE	
3895		B. Sewell	4944	4/16/19--	
SOLD TO			SHIP TO		
Davis Company, Inc.			Same		
3209 Cornell					
Cleveland 4, Ohio					
SHIP VIA		F.O.B.	TERMS		
Express			2/10, n/30		
NO. OF BOLTS	YDS. PER BOLT	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT
33	35	Muslin	yd.	49	
8	14	Flannel	yd.	3 98	
18	15½	Taffeta	yd.	89	
8	22	Gingham	yd.	89	
TOTAL					

Answers

31	
32	
33	
34	
35	

JOB No. 29 (Cont'd.)

LENOWAY WHOLESALE COMPANY 3248 Penn Avenue Pittsburgh, Pennsylvania				INVOICE 22986	
CUST. ORDER NO. 2483-2	SALESMAN. B. Jefferson	OUR ORDER NO. 4942	DATE 4/16/19--		
SOLD TO Sedgwick Company			SHIP TO Same		
217 Beech Street					
St. Louis 31, Missouri					
SHIP VIA Express		F.O.B.	TERMS 2/10, n/30		
NO. OF BOLTS	YDS. PER BOLT	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT
6	38½	Corduroy	yd.	90	
44	35	Muslin	yd.	49	
7	18½	Gingham	yd.	89	
7	39	Velvet	yd.	1 98	
TOTAL					

Answers
36
37
38
39
40

Timed Drill

- | | |
|--|--|
| (1) $45 \times 32 \times 45 =$ _____ | (6) $2 \frac{1}{2} \times 34 \times 72 =$ _____ |
| (2) $27 \times 4.5 \times 2.4 =$ _____ | (7) $3 \frac{1}{4} \times 6 \times 7.2 =$ _____ |
| (3) $567 \times 3 \times 5.6 =$ _____ | (8) $3.29 \times 6. \times .28 =$ _____ |
| (4) $23 \times 6.2 \times 4 =$ _____ | (9) $9 \frac{3}{4} \times .82 \times .07 =$ _____ |
| (5) $29 \times 3.6 \times .5 =$ _____ | (10) $1.5 \times 2 \frac{1}{4} \times 8.3 =$ _____ |

Timed Drill
1
2
3
4
5
6
7
8
9
10

JOB No. 29 (Cont'd.)

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. Use a rhythmic, bounce touch.
2. Do not pause between strokes.
3. Depress each key fully before releasing it.
4. Estimate the answer mentally.
5. Record answers rapidly.
 - a. Look at the answer in the dials and keep it in mind.
 - b. Write the answer in the proper space.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

NOTE: Your next assignment in this book is Job No. 31. Before proceeding with Job No. 31, ask your instructor about Job No. 30, which is Test No. 3.



MULTIPLICATION

Left-to-Right

Dropping off the Keyboard

Warm-Up Drill

Complete Warm-Up Drill F, page 68. Compute strokes and record results in the usual manner.

Left-to-Right Multiplication

The product of two factors may exceed the capacity of the answer dials. If the factors contain decimals, the problem may be solved by multiplying from the extreme left of the keyboard. In these problems we wish to carry out the answer to more than the usual two decimal places.

8- and 9-Column Calculators

1. From the extreme **left** of the dials, point off as many places to the right as there are **whole numbers** in both factors.
2. Hold the multiplicand at the extreme **left** of the keyboard.
3. Multiply by each digit in the multiplier, moving from left to right.
4. Depress keys for all digits in the multiplicand as long as the capacity of the machine permits. It may not be possible to strike keys for all digits in the multiplicand. When this occurs, drop the extreme right digits in the multiplicand, one at a time, and strike keys for that part of the multiplicand which it is still possible to hold.
5. Report as the answer digits in the first seven dials **from the left**, adding 1 to the last digit if the digit in the eighth dial is 5 or higher. The digits in the remaining dials are usually discarded because, by dropping parts of the multiplicand off the keyboard in the final key depressions, these digits may be inaccurate. This is usually not important because the answer in the first seven dials is ordinarily sufficient to satisfy most business problems.

JOB No. 31

MULTIPLICATION

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

8- and 9-Column Calculators

To Complete Problem (1a):

1. There are two whole numbers in the multiplicand and one whole number in the multiplier. Place the decimal pointer between the third and fourth dials from the **left**.
2. Place your fingers over 5324 at the **left** of the keyboard.
3. Multiply from left to right:
 - a. Strike keys for the multiplicand (5324) twice and move one column to the right.
 - b. Strike keys three times and move one place to the right.
 - c. Strike keys four times and move one place to the right.
 - d. Strike keys five times and move one place to the right.
 - e. Strike keys seven times and move one place to the right. (On an 8-column machine the 4 of 5324 will drop off the right of the keyboard.)
 - f. Strike keys once and move one place to the right. (On an 8-column machine the 2 will drop off. On a 9-column machine the 4 will drop off the keyboard.)
 - g. Continue to multiply, dropping digits from the key factor until all digits in the multiplier have been multiplied.
4. The answer is 124.8859.

(1a) $53.24 \times 2.345716 =$ _____

(2a) $98.23 \times 3.512425 =$ _____

(3a) $39.4 \times 421.34223 =$ _____

(4a) $235.4 \times 23.251124 =$ _____

(5a) $124.3 \times 84.122332 =$ _____

(6a) $179.4 \times 29.790548 =$ _____

(7a) $52.2 \times 852.81065 =$ _____

(8a) $400.7 \times 58.561694 =$ _____

(9a) $225.8 \times 44.680935 =$ _____

(10a) $91.61 \times 90.748176 =$ _____

Answers

1a	
2a	
3a	
4a	
5a	
6a	
7a	
8a	
9a	
10a	

JOB No. 31 (Cont'd.)

5-Column Calculator To Complete Problem (1b):

1. Place the decimal pointer between the first and second dials from the **left**, since there is one whole number in the multiplicand and none in the multiplier.
2. Hold 425 at the extreme **left** of the keyboard.
3. Multiply from left to right:
 - a. Strike keys for 425 eight times and move one column to the right.
 - b. Strike keys five times and move one column to the right.
 - c. Strike keys three times and move one column to the right. (The 5 of 425 will drop off the keyboard.)
 - d. Strike keys for 42 twice and move one column to the right. (The 2 of 42 will drop off the keyboard.)
 - e. Strike the key for 4 once.
4. The answer is 3.6261.

(1b) $4.25 \times .85321 =$ _____ (6b) $26.3 \times .72151 =$ _____
 (2b) $67.2 \times .42321 =$ _____ (7b) $1.29 \times .67453 =$ _____
 (3b) $8.81 \times .64222 =$ _____ (8b) $5.32 \times .57846 =$ _____
 (4b) $76.2 \times .54233 =$ _____ (9b) $77.4 \times .32705 =$ _____
 (5b) $2.31 \times .87533 =$ _____ (10b) $6.91 \times .24945 =$ _____

Timed Drill

8- and 9-Column Calculators

(1a) $37.5 \times 28.242369 =$ _____
 (2a) $197.4 \times 2.3245114 =$ _____
 (3a) $70.89 \times 662.85891 =$ _____
 (4a) $7.73 \times 96.649327 =$ _____
 (5a) $207.6 \times 34.741858 =$ _____

5-Column-Calculator

(1b) $2.56 \times .11302 =$ _____
 (2b) $26.1 \times .60314 =$ _____
 (3b) $5.88 \times .63748 =$ _____
 (4b) $56.6 \times .89745 =$ _____
 (5b) $4.26 \times .74388 =$ _____

JOB No. 31 (Cont'd.)

5-Column Calculator

1. From the extreme **left** of the dials, point off as many places to the right as there are **whole numbers** in both factors.
2. Hold the multiplicand at the extreme **left** of the keyboard.
3. Multiply by each digit in the multiplier, moving from left to right.
4. Depress keys for all digits in the multiplicand as long as the capacity of the machine permits. It will not be possible to strike keys for all digits in the multiplicand. When this occurs, drop the extreme right digits in the multiplicand, one at a time, and strike keys for that part of the multiplicand which it is still possible to hold.
5. Report as the answer the digits in the first five dials **from the left**, adding 1 to the last digit if the digit in the sixth dial is 5 or higher. The digit in the sixth dial is usually discarded because, by dropping parts of the multiplicand off the keyboard in the final key depressions, this digit may be inaccurate. This is usually not important because the answer in the first five dials is ordinarily sufficient to satisfy most business problems.

Timed Drill

Do Timed Drill Problems (1) to (5) in the usual manner.

Answers

1b	
2b	
3b	
4b	
5b	
6b	
7b	
8b	
9b	
10b	

Timed Drill

1a	
2a	
3a	
4a	
5a	

Timed Drill

1b	
2b	
3b	
4b	
5b	



MULTIPLICATION

Splitting the Key Factor

Warm-Up Drill

Complete Warm-Up Drill G, page 72. Compute strokes and record results in the usual manner.

Splitting the Key Factor

Multiplication problems sometimes contain factors that are too large to hold conveniently at one time. In such cases the key factor is split and each part is held separately in its proper position. The multiplication of such problems is usually done from left to right.

1. From the extreme **left** of the dials, point off as many places to the right as there are whole numbers in both factors.
2. Hold keys for the first three or four digits of the multiplicand (the key factor) at the left of the keyboard.
3. Multiply from left to right by the multiplier.
4. Do not clear the machine at this point; the dials show only a partial product.
5. Hold keys for the remainder of the key factor in the position where it would have been held if it were possible to hold the entire amount at one time.
6. Multiply from left to right by the multiplier, dropping off the keyboard when necessary.
7. Report the answer accurate to two decimal places.

JOB No. 32
MULTIPLICATION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

8- and 9-Column Calculators

(See next page for instructions on 5-column calculator)

To Complete Problem (1a):

1. Point off six places from the **left** since there are three whole numbers in the multiplicand and three whole numbers in the multiplier.
2. **8-Column Calculator:** Hold 537 in columns eight, seven, and six.
9-Column Calculator: Hold 537 in columns nine, eight, and seven.
3. Multiply by 132.24 from left to right. The dials read 71,012.88.
4. Do not clear the machine.
5. **8-Column Calculator:** Hold 921 (the last three digits of 537.921) in columns five, four, and three.
9-Column Calculator: Hold 921 (the last three digits of 537.921) in columns six, five, and four.
6. Multiply from left to right by 132.24, dropping off the keyboard when necessary.
7. The answer is 71,134.67.

(1a)	537.921	×	132.24	=	_____
(2a)	866.25	×	.35631	=	_____
(3a)	45.891	×	.13234	=	_____
(4a)	8,257.88	×	.43261	=	_____
(5a)	689.733	×	.22435	=	_____
(6a)	29.4193	×	.032121	=	_____
(7a)	6.4632	×	.15815	=	_____
(8a)	74.870	×	1.61082	=	_____
(9a)	9.0669	×	.10613	=	_____
(10a)	55.196	×	354.382	=	_____

Answers

1a	_____
2a	_____
3a	_____
4a	_____
5a	_____
6a	_____
7a	_____
8a	_____
9a	_____
10a	_____



SPEED DRILL

Four-Column Addition

This drill contains 15 problems of 50 strokes each, a total of 750 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

1. Complete each problem once, writing the answer in the space directly below the problem.

2. Complete the drill again, this time keeping a close check on the time in minutes and seconds.

a. If the second answer is the same as the first, place a check mark (✓) beside the first answer.

b. If the second answer is not the same as the first, write the second answer directly below the first answer.

3. Record in the Time Record at the right the time that was required to complete the drill.

4. Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.

5. When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 33
SPEED DRILL

Name _____

Period _____ Date _____

No. of Errors _____

Rating _____

(1)	(2)	(3)	(4)	(5)
27.28	.93	76.31	.96	4.93
.16	26.76	7.19	.15	.73
63.48	66.06	37.86	6.68	7.23
.36	4.70	3.54	89.62	50.89
5.70	.34	3.53	2.57	3.62
23.58	1.79	.50	2.39	42.47
62.83	.65	.75	.68	.50
.20	73.84	.69	77.98	6.37
31.46	95.56	.02	4.00	1.62
9.28	6.24	6.42	1.34	61.13
53.60	4.09	24.16	.22	4.37
8.05	.14	89.87	7.16	89.11

(6)	(7)	(8)	(9)	(10)
52.39	2.22	.45	76.93	60.14
.40	1.78	.62	.10	.28
.63	72.84	38.73	9.22	2.44
34.22	.32	5.73	85.94	.61
4.41	24.86	98.09	8.29	26.31
.16	4.72	.51	.71	7.55
94.46	46.97	.92	86.61	91.90
78.49	.28	31.73	.75	6.96
71.04	.45	.91	50.71	27.57
56.90	3.01	97.44	6.79	4.54
.78	78.54	7.26	.35	13.02
73.45	5.63	64.43	31.00	69.20

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Answers	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 32 (Cont'd.)

5-Column Calculator

To Complete Problem (1b):

1. Point off two places from the left, since there are two whole numbers in the multiplier and none in the multiplicand.
2. Hold 491 in columns five, four, and three.
3. Multiply from left to right by 52. The dials read 25.5320.
4. Do not clear the machine.
5. Hold keys for 35 (the last two digits of .49135) in columns two and one.
6. Multiply from left to right, dropping off the keyboard when necessary. The dials read 25.5501.
7. The answer is 25.55.

(1b) $.49135 \times 52 =$ _____ (6b) $581.71 \times .90 =$ _____
 (2b) $13.981 \times 6.3 =$ _____ (7b) $118.28 \times 9.3 =$ _____
 (3b) $191.91 \times .82 =$ _____ (8b) $935.21 \times .41 =$ _____
 (4b) $891.72 \times .61 =$ _____ (9b) $154.62 \times 7.90 =$ _____
 (5b) $.59951 \times 52 =$ _____ (10b) $29.161 \times 8.2 =$ _____

Timed Drill

8- and 9-Column Calculators

(1a) $674.308 \times 42.979 =$ _____
 (2a) $63.4789 \times 1.8258 =$ _____
 (3a) $292.63 \times 13.442 =$ _____
 (4a) $153.305 \times 83.247 =$ _____
 (5a) $902.61 \times 82.534 =$ _____

5-Column Calculator

(1b) $256.91 \times .93 =$ _____
 (2b) $15.691 \times 5.2 =$ _____
 (3b) $143.28 \times .411 =$ _____
 (4b) $1485.1 \times 9.3 =$ _____
 (5b) $86.716 \times 8.3 =$ _____

Answers

1b	
2b	
3b	
4b	
5b	
6b	
7b	
8b	
9b	
10b	

Timed Drill

1a	
2a	
3a	
4a	
5a	

Timed Drill

1b	
2b	
3b	
4b	
5b	

JOB No. 32 (Cont'd.)

Timed Drill

Do Timed Drill Problems (1) to (5) in the usual manner.

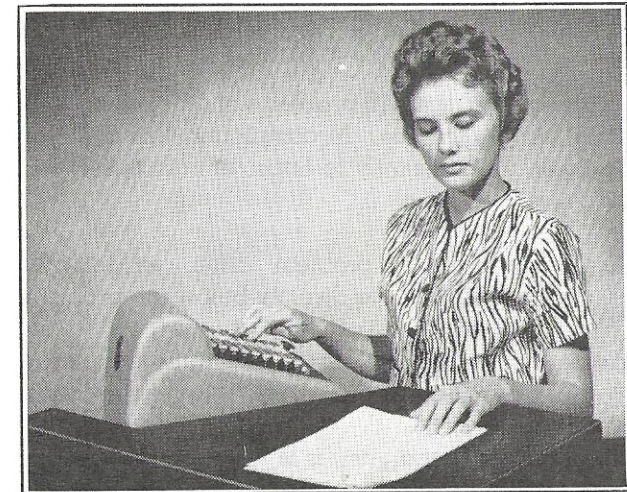
JOB No. 33 (Cont'd.)

(11)	(12)	(13)	(14)	(15)
3.87	7.12	19.57	42.41	1.05
9.46	77.94	24.69	.76	.05
48.67	.72	.33	.03	2.15
.03	91.98	9.75	.63	.06
6.61	.02	.20	1.63	.70
42.00	6.20	78.78	6.70	9.83
.39	1.99	14.39	85.20	57.22
6.81	82.45	.10	67.38	9.67
8.49	45.43	9.18	3.59	96.96
36.38	17.53	52.29	17.91	6.57
58.31	.54	.03	.38	6.99
.27	5.37	8.84	8.77	5.87

Answers

11	
12	
13	
14	
15	

JOB No. 33 (Cont'd.)



Correct Position at Calculator

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 50 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 50 by number of correct answers)
Gross strokes a minute..... (Divide gross strokes by 3)	Net strokes a minute..... (Divide net strokes by 3)



PERCENTAGE

Warm-Up Drill

Complete Warm-Up Drill H, page 86. Compute strokes and record results in the usual manner.

Percentages

Decimals, percentages, and fractions are different methods of expressing part of a whole, or 1.

The following terms have the same value in expressing part of a whole:

.25 Decimal
25% Per cent
1/4 Fraction
25/100 Fraction expressed as hundredth

On calculators, percentages must be converted to decimals before they are entered in the machine.

To change a **percentage to a decimal**, drop the % sign and move the decimal two places to the left.

To find the per cent of an amount, multiply it by the decimal equivalent of the per cent. Report the answer accurate to two decimal places.

Terms

Base is the whole amount which is equal to 100%.
(\$400)

Rate is a part of the base expressed in terms of per cent. (25% of \$400)

To find the **Percentage** in a problem, multiply **Base** by the **Rate**. ($\$400 \times .25 = \$100$)

JOB No. 34
PERCENTAGE

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

(1) 24% of \$350 = $(\$350 \times .24) =$ _____

(2) 85% of \$780 = _____

(3) 3% of \$ 85 = _____

(4) 28% of \$326.24 = _____

(5) 34% of \$529.97 = _____

(6) 12 1/2% of \$67 = $(\$67 \times .125) =$ _____

(7) 8 1/4% of \$ 5.87 = $(\$ 5.87 \times .0825) =$ _____

(8) 85 3/4% of \$69.34 = _____

(9) 34 1/2% of \$21.64 = _____

(10) 52 1/4% of \$38.59 = _____

(11) 32 % of \$123.48 = _____

(12) 78 1/2% of \$462.29 = _____

(13) 29 1/4% of \$ 37.12 = _____

(14) 37 % of \$460 = _____

(15) 48 3/4% of \$ 3.21 = _____

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

JOB No. 34 (Cont'd.)

Multiply sales by the rate of commission. Find the total sales and the total commission for each salesman.

Day	J. Johnson		C. Day		J. Hobbs	
	Sales	Com. 3%	Sales	Com. 5%	Sales	Com. 2½%
Mon.	588.67	(16)	645.63	(21)	558.72	(26)
Tues.	184.68	(17)	269.93	(22)	150.59	(27)
Wed.	237.72	(18)	298.81	(23)	104.17	(28)
Thurs.	390.74	(19)	182.75	(24)	224.33	(29)
Fri.	631.38	(20)	630.26	(25)	726.85	(30)
Totals						
	(31)	(32)	(33)	(34)	(35)	(36)

Timed Drill

- (1) 18% of \$675 = _____
- (2) 72% of \$394 = _____
- (3) 4 3/4% of \$395 = _____
- (4) 42% of \$ 2.83 = _____
- (5) 158% of \$ 3.47 = (\$3.47 × 1.58) = _____
- (6) 67 1/2% of \$ 79 = _____
- (7) 7% of \$ 8.57 = _____
- (8) 12 1/2% of \$ 67.10 = _____
- (9) 33% of \$348 = _____
- (10) 25% of \$ 47.24 = _____

Answers

16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36

JOB No. 34 (Cont'd.)

Warm-Up Drill H

During the first five minutes of the period do Warm-Up Drill H below, following the usual procedure. Each problem contains 50 strokes.

(1)	(2)	(3)
6.75	62.28	.49
72.98	2.09	97.47
.23	49.25	6.35
.81	.29	.44
37.20	1.61	71.28
2.26	26.28	6.44
80.55	.69	8.41
.28	.25	14.70
7.52	4.90	.49
68	81.35	2.95
94.21	5.28	53.94
8.75	7.59	.79

(4)	(5)	(6)
24.87	.65	.56
5.09	18.58	78.08
.95	6.47	62.16
30.73	5.73	.79
6.92	6.01	.59
7.21	.70	19.17
.56	82.74	.14
29.37	9.24	27.15
.90	39.55	.56
5.04	.11	84.62
89.31	28.41	3.60
77.24	46.24	31.02

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.



PERCENTAGE OF INCREASE AND DECREASE

Warm-Up Drill

Complete Warm-Up Drill E, page 61. Compute strokes and record results in the usual manner.

Percentage of Increase and Decrease

Percentages are useful in comparing business data. It is usually easier to understand the relationship of two numbers when they are expressed as percentages than to understand the significance of the relationship between the numbers themselves.

To find the percentage of change between two numbers:

1. Determine the difference between the older and newer numbers by subtraction.
2. Divide the difference by the older number (the base).
 - a. If the older number is smaller than the newer number, this is a percentage of increase and the answer should be preceded by a (+) sign.
 - b. If the older number is larger than the newer number, this is a percentage of decrease and the answer should be preceded by a (-) sign.

Percentage of Increase or Decrease

Older number (Base)) Amount of Increase or Decrease

.80 Increase = + 80%

200/160.00

Study the following examples:

	Last Week (Older Number)	This Week (Newer Number)	Amt. of Inc. or Dec.	% of Inc. or Dec.
(a)	\$200	\$360	+160	+ 80
(b)	200	400	+200	+100
(c)	200	300	+100	+ 50
(d)	200	200	—	—
(e)	200	100	-100	- 50
(f)	200	—	-200	-100

JOB No. 35
PERCENTAGE OF INCREASE AND DECREASE

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in Warm-Up Drill _____
Rating _____

To Complete Problem (1):

1. Subtract 200 from 280. The difference is 80.
2. Divide 80 by 200. The quotient is .40.
3. The older number is smaller than the newer number, so the answer is +40%.

SALES

	Last Week	This Week	Amt. of Inc. or Dec.	% of Inc. or Dec.
(1)	\$ 200	\$ 280	_____	_____
(2)	2,685	3,492	_____	_____
(3)	8,796	4,193	_____	_____
(4)	8,924	4,960	_____	_____
(5)	628	651	_____	_____

GROSS PROFIT

(6)	\$ 75	\$ 64	_____	_____
(7)	5,296	3,252	_____	_____
(8)	4,975	5,534	_____	_____
(9)	706	690	_____	_____
(10)	3,284	4,754	_____	_____

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 35 (Cont'd.)

	Cost Price	Selling Price	Amount of Markup	% of Markup
(11) Washing Machine	\$199.00	\$289.50	_____	_____
(12) Dishwasher	150.00	269.90	_____	_____
(13) Electric Range	200.00	310.00	_____	_____
(14) Washing Machine	199.00	225.00	_____	_____
(15) Clothes Dryer	200.00	250.00	_____	_____
(16) Television Set	400.00	550.50	_____	_____
(17) Disposal	70.00	90.00	_____	_____
(18) Air Conditioner	185.00	235.00	_____	_____
(19) Radio	28.00	55.00	_____	_____
(20) Vacuum Cleaner	69.50	99.50	_____	_____

Answers

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Timed Drill

	Pre-Sale Price	Sale Price	Amount of Markdown	% of Markdown
(1) Washing Machine	\$289.50	\$225.50	_____	_____
(2) Dishwasher	269.90	150.00	_____	_____
(3) Electric Range	310.00	250.90	_____	_____
(4) Washing Machine	225.00	175.00	_____	_____
(5) Clothes Dryer	250.00	210.00	_____	_____
(6) Television Set	550.50	370.50	_____	_____
(7) Disposal	90.00	69.00	_____	_____
(8) Air Conditioner	235.00	190.00	_____	_____
(9) Radio	55.00	32.50	_____	_____
(10) Vacuum Cleaner	99.50	70.50	_____	_____

Timed Drill

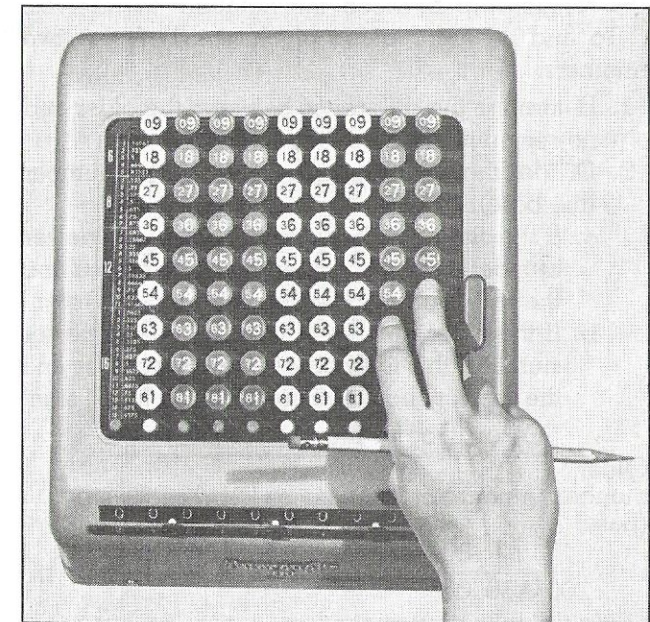
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 35 (Cont'd.)

Markup

To Complete Problems (11) to (20):

1. Find the Amount of Markup by subtracting the Cost Price from the Selling Price.
2. Determine the Percentage of Markup by dividing the Amount of Markup by the Cost Price. (Markup may be expressed either as a percentage of the Cost Price or as a percentage of the Selling Price. In these problems, markup is calculated as a percentage of the Cost Price.)



Position of Fingers to Strike 34
When Adding, Strike Keys Individually.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner:

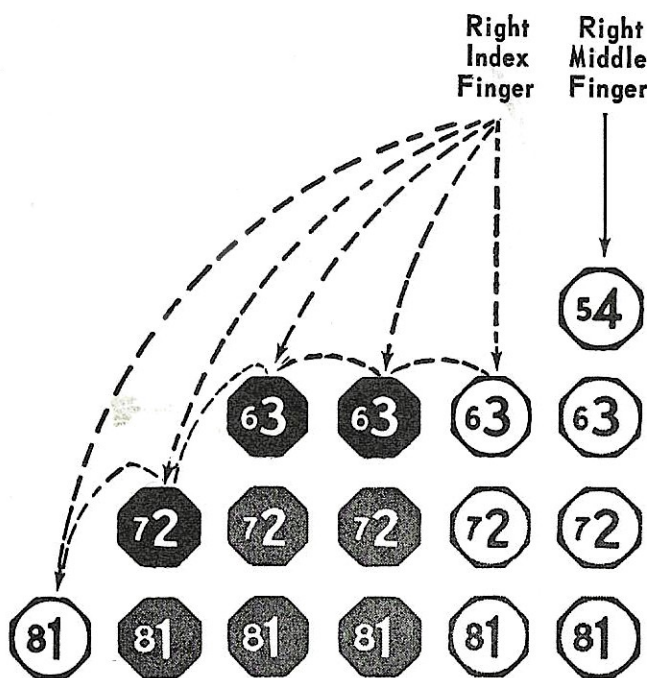
1. Find the Amount of Markdown by subtracting the Sale Price from the Pre-Sale Price.
2. Determine the Percentage of Markdown by dividing the Amount of Markdown by the Pre-Sale Price.

Warm-Up Drill

Complete Warm-Up Drill F, page 68. Compute strokes and record results in usual manner.

Touch Addition Six-Digit Numbers

1. Begin at the left of the number.
2. Strike keys for the first five digits with the right index finger.
3. Strike the units digit with the right middle finger.
4. Strive for an even, rhythmic action.



JOB No. 36

TOUCH ADDITION

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

To Complete Problem (1):

1. Strike 1,000.00, 200.00, 30.00, 3.00, and .30 with the right index finger.
2. Strike 4 with the right middle finger.
3. Before proceeding with Problem 1, strike 1,233.34 until an even, rhythmic action is achieved.

(1)	(2)	(3)	(4)
1,233.34	3,445.99	5,727.94	7,264.93
1,112.35	4,436.40	6.04	2,384.76
1,232.20	5,443.55	649.57	.52
3,367.30	4,773.32	52.31	.94
4,459.90	2,233.40	.15	75.59
4,333.22	8,884.45	2,334.97	4.29
8,433.63	9,988.45	59.42	643.85
4,455.98	5,554.32	7.72	20.53
3,663.35	2,234.95	.07	.04
6,734.87	4,973.87	46.83	4.32
3,211.02	3,068.50	385.08	136.49
(5)	(6)	(7)	(8)
99.47	24.41	345.49	352.48
7,345.73	32.43	.52	7.21
7.10	4,404.26	6,852.97	6,402.14
5,690.40	567.21	6,585.10	344.28
4,876.90	6.84	414.54	4,743.71
212.12	1,472.77	96.53	3.30
23.43	442.88	430.05	2.86
8,472.78	4,973.87	6.70	96.53
7.67	7,939.17	5,114.99	7.68
7.20	2,403.22	.52	8.03
436.50	8.58	58.61	7.50
4,853.40	1.03	1.67	8,915.68

Answers

1
2
3
4
5
6
7
8

JOB No. 36 (Cont'd.)

(9)	(10)	(11)	(12)
.68	7,259.28	7,511.92	605.43
25.62	372.39	297.49	62.92
9,395.33	3.75	95.61	.48
.46	876.15	.38	.80
129.00	12.83	9,135.16	.32
6.24	9.73	.69	4,093.56
.40	.03	90.51	.30
8,535.77	6,412.26	.55	6.13
4.61	339.26	2,942.36	4,378.01
3,984.40	64.24	.01	28.05
.89	.50	325.46	4.55
5.92	946.71	7.92	658.35

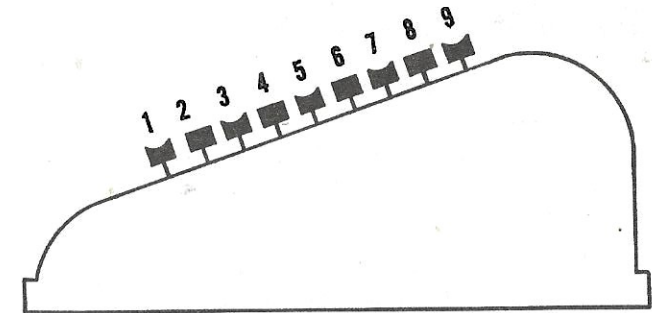
Timed Drill

(1)	(2)	(3)	(4)
6,583.34	3,981.22	.22	6,773.22
49.40	2.33	1,003.04	6.07
.24	.45	.46	935.82
9,404.42	309.40	5,481.25	9.29
21.15	.84	5.98	5,624.82
521.51	5,354.33	8,664.50	4.60
2.51	.35	3.00	3,528.24
9,191.93	.54	.31	4,363.87
3.04	304.00	6,992.04	1.36
.83	3,382.30	.98	6,941.52
.40	1.02	7,796.28	.19
288.33	2.00	4.23	262.01

Answers

9	
10	
11	
12	

JOB No. 36 (Cont'd.)



Odd-Numbered Keys Are Concave.
Even-Numbered Keys Are Flat.

Timed Drill

Do Timed Drill Problems (1) to (4) in the usual manner.

Timed Drill

1	
2	
3	
4	

**SPEED DRILL****Five-Column Addition**

This drill contains 15 problems of 60 strokes each, a total of 900 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

- Complete each problem once, writing the answer in the space directly below the problem.
- Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - If the second answer is not the same as the first, write the second answer directly below the first answer.
- Record in the Time Record at the right the time that was required to complete the drill.
- Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
- When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 37
SPEED DRILL

 Name _____
 Period _____ Date _____

 No. of Errors _____
 Rating _____

(1)	(2)	(3)	(4)	(5)
.63	2.74	.38	6.03	.52
497.43	917.94	5.43	249.44	627.14
20.12	755.55	795.87	198.15	53.47
768.39	26.96	.44	1.95	.90
4.23	.08	92.68	.06	325.26
57.31	4.11	144.50	14.49	32.66
615.82	87.76	.99	832.22	9.78
.53	621.23	855.04	7.90	96.40
4.97	4.86	7.05	88.25	97.30
13.32	26.07	83.88	47.28	554.90
397.48	206.31	182.12	714.54	.06
4.95	.10	37.68	341.52	768.28

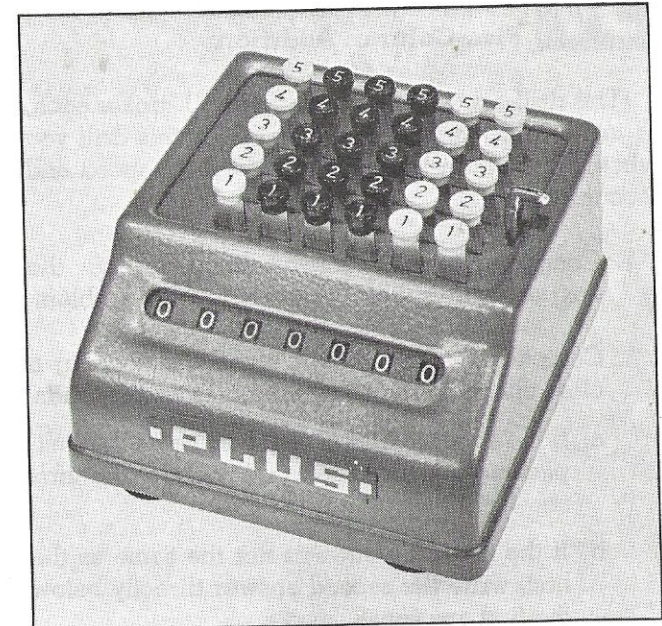
(6)	(7)	(8)	(9)	(10)
478.71	264.83	821.11	237.62	469.16
.75	43.76	.12	.97	19.59
897.46	.65	37.42	684.26	27.00
10.10	2.46	8.66	.67	9.85
.46	363.92	938.74	35.12	23.93
71.79	.17	10.00	.09	27.15
13.92	89.47	376.22	47.42	.03
10.27	.57	6.75	177.59	872.62
723.44	86.59	20.63	80.55	7.59
.61	2.84	8.79	86.04	10.03
7.03	698.11	14.87	1.41	9.94
47.87	.50	5.83	272.07	441.76

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Answers	
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10	

JOB No. 37 (Cont'd.)

(11)	(12)	(13)	(14)	(15)	Answers
98.68	780.25	12.78	72.53	.89	11
657.48	.73	862.09	105.10	.50	12
341.40	811.81	.10	.72	7.23	13
4.76	2.27	489.24	642.85	25.86	14
45.01	19.00	.89	47.28	843.54	15
.02	55.98	76.45	8.47	16.34	
87.25	.01	.36	.80	396.06	
248.50	5.46	766.31	.09	40.28	
41.43	62.41	596.68	249.78	165.62	
8.00	789.59	.36	7.11	2.39	
76.57	61.02	.03	289.99	3.84	
192.94	349.76	444.80	85.57	668.22	



**Plus
Part-Key-board**

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 60 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 60 by number of correct answers)
Gross strokes a minute..... (Divide gross strokes by 3)	Net strokes a minute..... (Divide net strokes by 3)

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

JOB No. 38 (Cont'd.)

Complete Problems (11)–(20) following the procedure outlined on the previous page.

Item	List Price	Discount Rate	Discount	Net Amount	Answers
(11) Coffee Table	\$49.50	20%			11 Discount
(12) Couch	289.90	33 1/3%			Net Amt.
(13) Desk	260.00	15%			12 Discount
(14) Club Chair	89.95	10%			Net Amt.
(15) Chest	150.00	20%			13 Discount
(16) Dresser	195.00	25%			Net Amt.
(17) Night Table	38.00	10%			14 Discount
(18) Double Bed	225.00	20%			Net Amt.
(19) Mirror	32.50	10%			15 Discount
(20) Crib	37.50	10%			Net Amt.
					16 Discount
					Net Amt.
					17 Discount
					Net Amt.
					18 Discount
					Net Amt.
					19 Discount
					Net Amt.
					20 Discount
					Net Amt.

FRANKLIN PUBLISHING COMPANY				INVOICE	
3421 Fourth Avenue Kansas City, Missouri					
CUST. ORDER NO. 2134	SALESMAN S. Stanford	OUR ORDER NO. S-3472	DATE 10/21/19-	52552	
SOLD TO Tulsa Public Schools			SHIP TO Warehouse		
Tulsa			1610 Prvor Street		
Oklahoma			Tulsa, Oklahoma		
SHIP VIA Freight	F.O.B.		TERMS Net		
QUANTITY	DESCRIPTION	STOCK NO.	PRICE	AMOUNT	
60	General Business Books	G10	3.68		
45	Typewriting Books	T50	2.40		
90	Bookkeeping Books	B75	3.50		
45	Economics Books	G40	3.75		
	Total				
	12% Discount				
	Net Amount				

JOB No. 38 (Cont'd.)

3. Subtract the Discount from the Gross Amount.

- Engage the decimal nontransfer key.
- If the product in the lower dials has more than two decimals, depress the full-cent key. If the thousandths decimal is 5 or above, 1 will be added to the hundredths decimal.

4. Operate the direct subtraction key or lever. Record the answer as the Net Amount.

To Complete Problems (21) to (27):

- Multiply Quantity by Price and record answer in the Amount column.
- Add the Amount column and record Total.
- Multiply Total by Discount.
- Subtract Discount from Total to find Net Amount of the invoice.

21	
22	
23	
24	
25	
26	
27	

JOB No. 38 (Cont'd.)

WARM-UP DRILL I

During the first five minutes of the period do Warm-Up Drill I below, following the usual procedure. Each problem contains 10 strokes.

(1)	(2)	(3)
94.41 - 12.79	25.86 - 1.69	96.58 - .25
(4)	(5)	(6)
63.85 - 29.87	8.96 - 1.48	44.87 - 6.82
(7)	(8)	(9)
28.69 - .46	19.65 - 8.62	77.81 - 1.90
(10)	(11)	(12)
62.54 - 16.78	83.31 - 13.15	26.54 - 22.35
(13)	(14)	(15)
43.95 - 18.58	99.63 - .87	41.97 - 8.07

JOB No. 38 (Cont'd.)

Name _____

PHILLIPS HARDWARE 1626 Flint Avenue Topeka, Kansas			INVOICE 26315	
CUST. ORDER NO. KT-399	SALESMAN	OUR ORDER NO. 6438	DATE 10/21/19--	
SOLD TO PAYNE AND COMPANY			SHIP TO SAME	
1200 OAK STREET				
TOPEKA, KANSAS				
SHIP VIA TRUCK	F.O.B. TOPEKA	TERMS NET 30 DAYS		
QUANTITY	DESCRIPTION	PRICE	AMOUNT	
96	PLASTIC GARDEN HOSE	1.36		
28	OSCILLATING WATER SPRINKLERS	4.68		
40	PRUNING SHEARS	.89		
52	BOW-TYPE GARDEN RAKES	.83		
	TOTAL			
	LESS 25%			
	NET AMOUNT			

Answers

28	
29	
30	
31	
32	
33	
34	

NOVELTY JEWELRY CO. 134 East 34th Street New York 23, N. Y.			
RETAIL JEWELRY CO. QUEEN BOULEVARD WOODSIDE, N. Y.		INVOICE NO. 1562 DATE 1/7/19-- SHIP VIA Express TERMS 30 days	
QUANTITY	DESCRIPTION	PRICE	AMOUNT
4	WATCH CHARMS	1.59	
2 Doz.	BROOCHES	4.48 Doz.	
3 Pr.	PEARL EARRINGS	2.98 Pr.	
	TOTAL		
	LESS 19%		
	Net Amount		

Answers

35	
36	
37	
38	
39	
40	

ARNOLD NOVELTY COMPANY, INC. 304 Sherman Road Helena, Montana			INVOICE 6883	
CUST. ORDER NO. 1248	SALESMAN R. Johnson	OUR ORDER NO. 3445	DATE 3/19/19/-	
SOLD TO Harris Department Store 1903 49th Street Denver, Colorado		SHIP TO Warehouse 1904 50th Street Denver, Colorado		
SHIP VIA Freight		F.O.B. Helena	TERMS net, 30 days	
QUANTITY	DESCRIPTION	PRICE	AMOUNT	
12	2-quart Ice Buckets	1.37		
25	4-arm Candelabras	2.74		
16	3-piece Trivet Sets	3.12		
20	Horse Book Ends	1.38		
	Total			
	37½% Discount			
	Net Amount			

Answers

41	
42	
43	
44	
45	
46	
47	



Correct Position at Calculator

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

Timed Drill

	List Price	Discount Rate	Discount	Net Amount
(1) Typewriter, standard	\$190.00	20%		
(2) Typewriter, electric	350.00	30%		
(3) File cabinet	120.00	10%		
(4) Desk	355.00	10%		
(5) Chair	85.00	10%		
(6) Bookcase	67.50	15%		
(7) Key-driven calculator	349.00	25%		
(8) Rotary calculator	550.50	33 1/3%		
(9) Dictating machine	375.00	20%		
(10) Fluid duplicator	225.00	12 1/2%		

Timed Drill

1 Discount	
Net Amt.	
2 Discount	
Net Amt.	
3 Discount	
Net Amt.	
4 Discount	
Net Amt.	
5 Discount	
Net Amt.	
6 Discount	
Net Amt.	
7 Discount	
Net Amt.	
8 Discount	
Net Amt.	
9 Discount	
Net Amt.	
10 Discount	
Net Amt.	

Warm-Up Drill

Complete Warm-Up Drill G, page 72. Compute strokes and record results in the usual manner.

Chain Discounts

A series of two or more trade discounts from the list price may be offered. This series of discounts is called a **chain discount**. A chain discount of 25%-12% means that after 25% has been deducted from the list price, 12% more is deducted from the remaining amount.

Chain Discounts Without a Table

1. Enter the gross amount at the right of the machine.
2. Hold **small** numbers for the amount of the first discount and perform compound multiplication. (If necessary, see Job 29.)
3. Hold **small** numbers for the amount of the second discount and perform compound multiplication.
4. Continue to hold small numbers and perform compound multiplication for all additional discounts in the chain.
5. Move the decimal point from the right of the machine for the total number of decimal places in the gross amount and the discounts.

Chain Discounts with a Table

Tables of chain discount equivalents are available for the more common chain discounts. It is always faster and probably more accurate to use a table of chain discounts rather than to figure each discount in the chain individually because, regardless of the number of discounts in the chain, it is necessary to make only one multiplication.

Net amount equivalents are shown in the table of Chain Discount Net Equivalents on page 151. To determine the net amount, multiply the gross amount by the chain discount equivalent. To find the amount of the discount, subtract the net amount from the gross amount.

JOB No. 39

CHAIN DISCOUNTS

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

Chain Discounts Without a Table

To Complete Problem (1):

1. Enter \$40 at the right of the machine.
2. Hold **small** 25 and perform compound multiplication. (By holding **small** 25 you are actually multiplying by **large** 75 less 1, or **large** 74.) The complement of 25 is 75. You hold 75 less one because you will perform
3. Hold **small** 20 and perform compound multiplication. The dials now read 240,000.
4. Point off four decimal places. The net amount is \$24.

	Gross Amount	Discounts	Net Amount
(1)	\$40	less 25-20%	= _____
(2)	24	less 30-15%	= _____
(3)	71	less 40-12%	= _____
(4)	85	less 20-10%	= _____
(5)	93	less 15- 5%	= _____

Chain Discounts with a Table

To Complete Problem (6):

1. The decimal equivalent for 25-10% in the table on page 151 is .675.
2. Multiply 476 by .675. The net amount is \$321.30.

- (6) \$476 less 25-10% = _____
- (7) 852 less 15-5 = _____
- (8) 3,477 less 33 1/3-10 = _____
- (9) 208 less 25-10-5 = _____
- (10) 747 less 33 1/3-10-10-5 = _____

Answers

1	
2	
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JOB No. 39 (Cont'd.)

GIBBS DISTRIBUTING COMPANY 3703 Fourth Avenue Los Angeles, California					PURCHASE ORDER NO. 10107
REQ. NO. 342	DATE NEEDED 5/16/19--	FOR Dept. C	TERMS Net	DATE 4/20/19--	
TO S. L. Worth, Inc.				SHIP VIA Express	
78 Fifth Avenue, Spokane, Wash.					
DELIVER TO Gibbs Distributing Company (Warehouse) 3705 Fourth Avenue, Los Angeles, Calif.					
QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT	
5 doz.	Silk Ties #8123	doz.	12.50		
3 doz.	Silk Socks #294	doz.	8.75		
3 doz.	Silk Shirts #541	doz.	36.60		
Total					
Less Discounts 15-5%					
Net Amount					
<i>M. L. Garrett</i> PURCHASING AGENT					

Timed Drill

	Gross			
	Discounts	Discounts	Net Amount	
(1)	\$73	less 40-12%	=	_____
(2)	56	less 20-15%	=	_____
(3)	439	less 20-5%	=	_____
(4)	683	less 10-10%	=	_____
(5)	68	less 20-5-5%	=	_____
(6)	79	less 15-15%	=	_____
(7)	123	less 33 1/3-10-10%	=	_____
(8)	53	less 33 1/3-10-10-5%	=	_____
(9)	38	less 30-15%	=	_____
(10)	42	less 25-10%	=	_____

JOB No. 39 (Cont'd.)

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. Place this book on the desk in the same position as paper for a penmanship lesson.
2. Place the calculator to the right of the book.
3. Sit in a comfortable, erect position with your feet flat on the floor.
4. Hold a pencil in the right hand with the point away from the body and the thumb against the palm of the hand.
5. Hold the right arm as in free-arm writing with the wrist straight.
6. Curve the fingers.
7. Estimate the answer mentally.

Answers

11	
12	
13	
14	
15	
16	

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

NOTE: Your next assignment in this book is Job No. 41. Before proceeding with Job. No. 41, ask your instructor about Job No. 40, which is Test No. 4.

Timed Drill

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INVENTORIES

Warm-Up Drill

Complete Warm-Up Drill J, page 102. Compute strokes and record results in the usual manner.

Inventories

An **inventory** is an itemized list of merchandise on hand giving the quantity and value of each item. Inventories are usually taken periodically, such as annually, semiannually, or monthly. Items on the shelves can be counted by one person and recorded by another. The calculating machine operator then completes the inventory.

To Complete Problems (1) to (22):

On standard calculators:

1. Multiply the Quantity by the Price.
2. Record the answer in the Extension column.
3. Add all extensions to get the Total.
4. Initial the heading of the inventory sheet to indicate that it was figured by you.

On duplex calculators:

1. Multiply the Quantity by the Price.
2. Record the answer in the Extension column.
3. Operate the full-cent key and the lower-to-upper transfer key. (Be sure that the nontransfer key is latched down.)
4. After you have transferred the last extension to the upper dials, the total of all extensions will appear in the upper dials.
5. Record the total and initial the heading of the inventory sheet to indicate that it was figured by you.

JOB No. 41 INVENTORIES	Name _____	No. of Errors _____
	Period _____ Date _____	Strokes in Warm-Up Drill _____ Rating _____

INVENTORY					#124
Dept.	House Furnishings		Date Jan. 2, 19--		#124
Counted by	A. L. S.		Priced by E. P. T.		Date 1/2/--
Recorded by	J. E. R.		Figured by		Dept. H F
					Checked by
Stock No.	Quantity	Description	Price	Extension	Checked
426	12 doz.	1-qt. Sauce pans	21.20 doz.		
428	15 doz.	Galvanized tubs	12.45 doz.		
430	4 doz.	6-cup Percolators	48.63 doz.		
432	$\frac{1}{2}$ doz.	Lamp shades	12.00 doz.		
434	$8\frac{1}{2}$ doz.	Pulleys	1.25 doz.		
436	13 doz.	Window shades	7.53 doz.		
438	8 doz.	Clothes pins	.19 doz.		
440	$9\frac{1}{2}$ doz.	Enamel ladles	1.23 doz.		
442	25 doz.	Flower pots	3.55 doz.		
444	12 doz.	Cannister sets	1.49 doz.		
		Total			

Answers	
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JOB No. 41 (Cont'd.)

There are 12 units in a dozen (doz.).

There are 144 units in a gross (gr.).

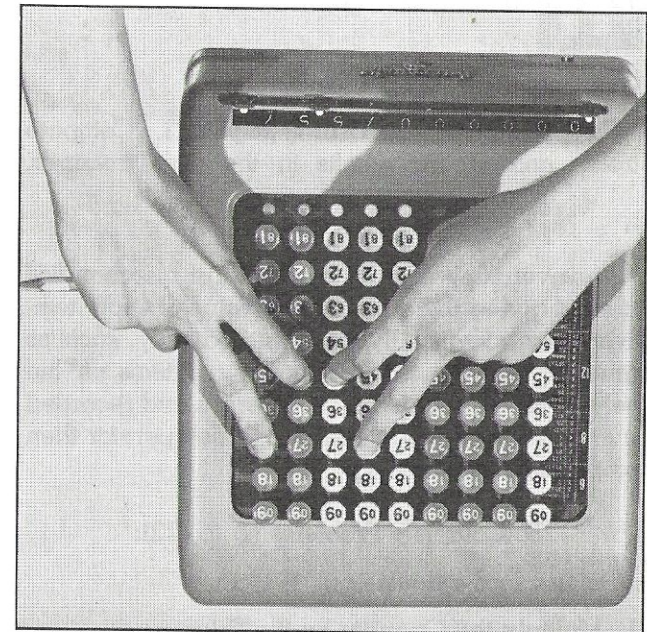
There are 12 dozen in a gross.

I N V E N T O R Y					#124	#124
Dept. Flowers		Date Jan. 2, 19--		Date 1/2/--		
Counted by: J. M.		Priced by: H. W.		Dept. Flowers		
Recorded by: T. R.		Figured by:		Checked by		
Stock No.	Quantity	Description	Price	Extension	Checked	
785	1½ gr.	Natural Dogwood	.05 ea.			
791	12 only	Chrysanthemums	6.00 gr.			
795	¾ doz.	Chrysanthemums	.15 ea.			
799	2 gr.	Rose Buds	1.20 doz.			
800	100 only	Ferns	.20 ea.			
803	24 doz.	Forsythia	.19 ea.			
805	9 doz.	Cosmos	.12 ea.			
810	1 gr.	Lilies	1.00 doz.			
815	3½ gr.	Japanese Lanterns	12.00 gr.			
820	25 only	Magnolias	1.00 ea.			
		Total				

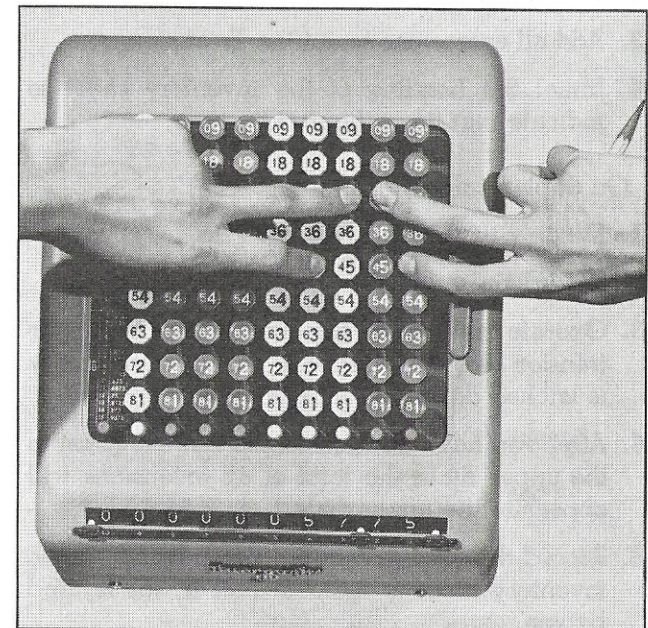
Answers

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19	
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21	
22	

JOB No. 41 (Cont'd.)



Natural Fingering



Reverse Fingering

JOB No. 41 (Cont'd.)

To Complete Problems (23) to (61):

1. Multiply the Unit Quantity (Column 1) by the Quantity Per Unit (Column 2) and place the answer in Total Quantity (Column 3).
2. Multiply Total Quantity by the Unit Price (Column 4) and record the product in the Extensions column (Column 5).
3. When all extensions are completed, find the Total by adding the Extensions column.
4. When the inventory is completed, place your initials in the space immediately after Ext'd By in the heading of the form.



Correct Position at Calculator

JOB No. 41 (Cont'd.)

Name _____

INVENTORY						
DATE <u>Jan. 4, 19--</u>	PRICED BY <u>M. A. M.</u>	PAGE NO. <u>1</u>				
CALLED BY <u>J. E. R.</u>	EXT'D BY _____	BUILDING <u>3</u>	REG. NO. <u>1</u>			
ENTERED BY <u>M. E.</u>	EXAM'D BY <u>R. J. S.</u>	FLOOR <u>2</u>	DEPT. NO. <u>3</u>			
DESCRIPTION	STOCK NO.	UNIT QUANTITY	QUAN. PER UNIT	TOTAL QUANTITY 1 x 2	UNIT PRICE	EXTENSIONS 3 x 4
Marshmallows	47	56	16	(23)	40	(42)
Peanut Squares	48	48	16	(24)	40	(43)
Fudge	49	62	12	(25)	64	(44)
Nougats	50	47	16	(26)	40	(45)
Peppermint Wafers	51	15	12	(27)	64	(46)
Wintergreen Wafers	52	48	16	(28)	40	(47)
Coconut Wafers	53	36	12	(29)	64	(48)
Wafers, Assorted	54	25	16	(30)	40	(49)
Milk Chocolate Wafers	55	46	12	(31)	64	(50)
Chocolate Buds	56	67	12	(32)	60	(51)
Gum Drops	57	25	16	(33)	51	(52)
Butterscotch	58	14	12	(34)	40	(53)
Buttercups	59	34	16	(35)	44	(54)
Licorice Shoestrings	60	46	12	(36)	48	(55)
xx Milk Choc. Bars	61	26	16	(37)	40	(56)
xxx Milk Choc. Bars	62	126	1	(38)	144	(57)
Choc. Almond Bars	63	87	1	(39)	144	(58)
Peanut Bars	64	63	1	(40)	144	(59)
Caramels	70	35	12	(41)	64	(60)
TOTAL						(61)

Answers

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JOB No. 41 (Cont'd.)

Timed Drill

INVENTORY					#124
Dept. Jewelry					Date 1/2/--
Counted by: J. T.					Dept. Jewelry
Recorded by: J. R.					Checked by
Date Jan. 2, 19--					
Priced by: B. A.					
Figured by:					
Stock No.	Quantity	Description	Price	Extension	Checked
2351	24 pr.	Earrings	12.00 doz. pr.		
2352	12 doz.	Necklaces	19.50 doz.		
2451	8 doz.	Brooches	9.00 doz.		
2452	4 doz.	Clips	15.35 doz.		
2551	3 doz.	Girls' Rings	25.59 doz.		
2552	9 doz.	Pins	36.50 doz.		
2650	4½ doz.	Girls' Rings	5.53 doz.		
2651	5½ doz.	Necklaces	2.53 ea.		
2652	9½ doz.	Charms	12.50 doz.		
2653	1½ doz.	Charms	1.50 ea.		
2731	1½ doz.	Brooches	2.40 doz.		
			Total		

Timed Drill	
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12	

JOB No. 41 (Cont'd.)

WARM-UP DRILL J

During the first five minutes of the period do Warm-Up Drill J below, following the usual procedure. Each problem contains 20 strokes.

- (1) $149.688 \div 97.2$ _____
- (2) $1,616.96 \div .992$ _____
- (3) $15.7896 \div 9.18$ _____
- (4) $1,771.99 \div 97.9$ _____
- (5) $698.88 \div .0336$ _____
- (6) $1,186.99 \div 547.$ _____
- (7) $187.765 \div 7.99$ _____
- (8) $1,978.84 \div .811$ _____
- (9) $149.776 \div .592$ _____
- (10) $898.66 \div 343.$ _____
- (11) $172.898 \div .638$ _____
- (12) $2,836.68 \div 924.$ _____
- (13) $226.888 \div 7.18$ _____
- (14) $1,868.75 \div .0575$ _____
- (15) $746.895 \div .5151$ _____

Timed Drill

Do Timed Drill Problems (1) to (12) in the usual manner.



INVENTORIES Turnover and Unit Cost

Warm-Up Drill

Complete Warm-Up Drill H, page 86. Compute strokes and record results in the usual manner.

Inventories

Inventory turnover may be computed on the basis of the Sales and the Average Inventory.

To Complete Problems (1) to (18):

1. Divide the Sales for each store by the Average Inventory of that store to find the Rate of Turnover. Record the rate accurate to two decimals.
2. Add Sales for all the stores to determine Total Sales.
3. Add the Average Inventory for all the stores to find the Total Average Inventory.
4. Divide Total Sales (step 2) by Total Average Inventory (step 3) to determine the Rate of Turnover for all stores.

JOB No. 42
INVENTORIES

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

STORE NUMBER	SALES	AVERAGE INVENTORY	RATE OF TURNOVER	Answers
1	\$62,583	\$4,297		1
2	53,070	7,590		2
3	35,811	2,179		3
4	39,541	5,197		4
5	24,687	2,335		5
6	51,181	5,101		6
7	22,019	3,169		7
8	27,815	1,371		8
9	98,831	6,451		9
10	54,578	5,284		10
11	95,901	8,399		11
12	56,144	2,694		12
13	22,818	7,804		13
14	56,941	4,640		14
15	82,210	9,411		15
TOTALS				16
	(16)	(17)	(18)	17
				18

JOB No. 42 (Cont'd.)

INVENTORY COST RECORD						
Electric Fixtures B-367				Department F		
DATE	UNITS PURCHASED	PURCHASE PRICE	UNITS DISBURSED	BALANCE	VALUE	AVERAGE UNIT COST
19--						
Nov. 1				178	284.80	1.60
3	200	325.80		378	610.60	1.615
4			50	328	529.72	
4			98	(19)	(20)	
5			20	(21)	(22)	
7			67	(23)	(24)	
8	203	330.89		(25)	(26)	(27)
10			52	(28)	(29)	
12	392	650.72		(30)	(31)	(32)
13			21	(33)	(34)	
14			96	(35)	(36)	
14			153	(37)	(38)	
15			72	(39)	(40)	

JOB No. 42 (Cont'd.)

Merchandise is often bought at various prices and carried on the books at an average cost per unit. Each time merchandise is purchased, a new Average Unit Cost must be found if the purchase price is different from the previous Average Unit Cost.

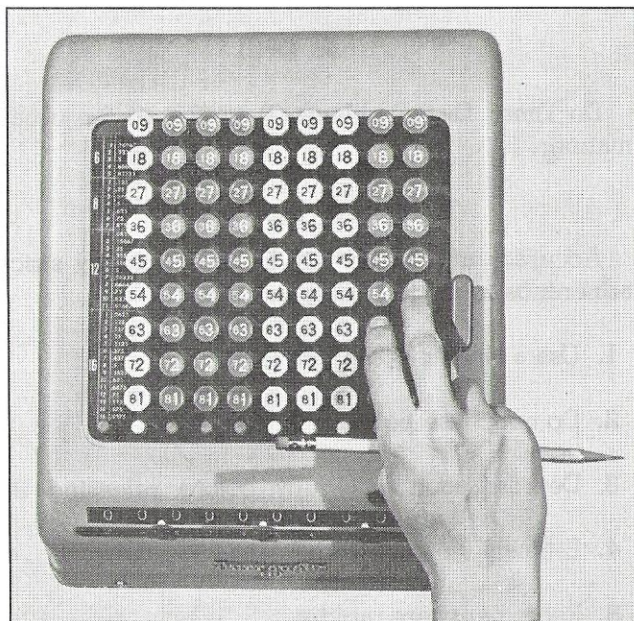
To Complete Problems (19) to (70):

1. Add the Units Purchased to the previous Balance to find the new Balance.
2. Add the Value of the units on hand and the Purchase Price of the new units to ascertain the new Value. Record the new Value in the Value column.
3. Divide the new Value of the units on hand by the new Balance to get the new Average Unit Cost. Round the Average Unit Cost to three decimal places.
4. Units Disbursed cause no change in the Average Unit Cost. Subtract the Units Disbursed from the Balance to find the new Balance.
5. Multiply the Balance by the Average Unit Cost to determine the Value.

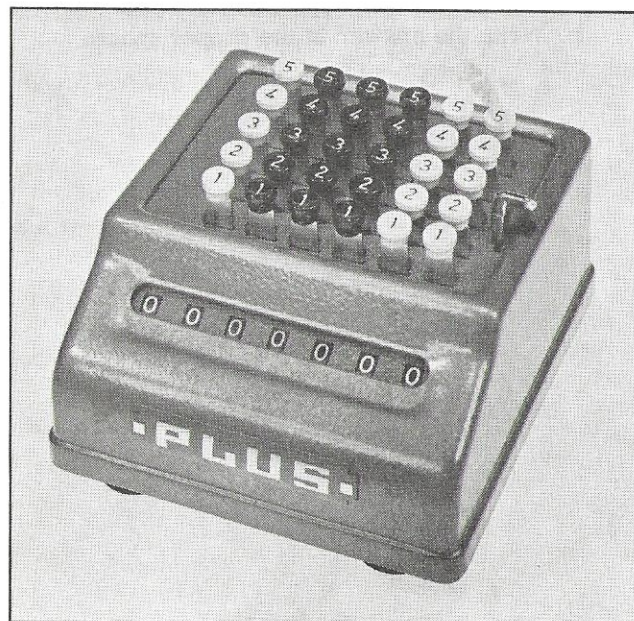
The first three lines of the problem have been completed for you. Verify the calculations before completing the remaining lines.

Answers

19	
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Position of Fingers to Strike 34
When adding, strike each key individually.



Plus Part-Keyboards

Complete this Inventory Cost Record, following the instructions on page 104.

INVENTORY COST RECORD						
Electric Fuses X-45				Department F		
DATE	UNITS PURCHASED	PURCHASE PRICE	UNITS DISBURSED	BALANCE	VALUE	AVERAGE UNIT COST
19--						
Apr. 2				620	747.10	1.205
3			276	(41)	(42)	
4			93	(43)	(44)	
5	458	563.34		(45)	(46)	(47)
7	243	303.75		(48)	(49)	(50)
9			438	(51)	(52)	
10			195	(53)	(54)	
11			85	(55)	(56)	
12	278	213.60		(57)	(58)	(59)
13			318	(60)	(61)	
14			25	(62)	(63)	
16			40	(64)	(65)	
18	334	420.84		(66)	(67)	(68)
20			55	(69)	(70)	

Answers

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70

JOB No. 42 (Cont'd.)

Timed Drill

STORE NUMBER	SALES	AVERAGE INVENTORY	RATE OF TURNOVER
101	\$16,912	\$1,149	(1)
102	87,754	5,746	(2)
103	71,895	3,061	(3)
104	41,652	6,722	(4)
105	65,784	5,861	(5)
106	53,942	2,762	(6)
107	78,561	4,586	(7)
TOTALS	(8)	(9)	(10)

INVENTORY COST RECORD

Electric Sockets R-345

Department F

DATE	UNITS PURCHASED	PURCHASE PRICE	UNITS DISBURSED	BALANCE	VALUE	AVERAGE UNIT COST
19-- Dec. 1				610	439.20	\$.72
2			96	(11)	(12)	
3			55	(13)	(14)	
4	570	427.50		(15)	(16)	(17)
5			460	(18)	(19)	
7			68	(20)	(21)	
8			171	(22)	(23)	

JOB No. 42 (Cont'd.)

Timed Drill

Do Timed Drill Problems (1) to (23) in the usual manner.

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. Use a rhythmic, bounce touch.
2. Do not pause between strokes.
3. Depress each key fully before releasing it.
4. Estimate the answer mentally.
5. Record answers rapidly.
 - a. Look at the answer in the dials and keep it in mind.
 - b. Write the answer in the proper space.

Timed Drill

1	
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21	
22	
23	



SPEED DRILL
Multiplication of
Four-Digit Factors
with Decimals

This drill contains 30 problems of 15 strokes each, a total of 450 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

To Complete Problems (1) to (30):

1. Complete each problem once, writing the answer in the space alongside the problem.
2. Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - a. If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - b. If the second answer is not the same as the first, write the second answer directly below the first answer.
3. Record in the Time Record at the right the time that was required to complete the drill.
4. Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
5. When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 43
SPEED DRILL

Name _____

Period _____ Date _____

No. of Errors _____

Rating _____

- (1) $161.8 \times 62.7 =$ _____
- (2) $266.6 \times 9.42 =$ _____
- (3) $1,949 \times 76.2 =$ _____
- (4) $61.07 \times 7.8 =$ _____
- (5) $240.9 \times 3.66 =$ _____
- (6) $7,516 \times 9.6 =$ _____
- (7) $88 \times 64.05 =$ _____
- (8) $4,537 \times 9.42 =$ _____
- (9) $188.3 \times 65.4 =$ _____
- (10) $245.8 \times 82.5 =$ _____
- (11) $7.9 \times 163.5 =$ _____
- (12) $548 \times 145.5 =$ _____
- (13) $27.35 \times 9.15 =$ _____
- (14) $27.44 \times 7.8 =$ _____
- (15) $3,189 \times 12.66 =$ _____
- (16) $690 \times 115.8 =$ _____
- (17) $7,703 \times .87 =$ _____
- (18) $6,945 \times .339 =$ _____
- (19) $2,787 \times 18.6 =$ _____
- (20) $1,646 \times 58.2 =$ _____

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Answers		Answers	
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

JOB No. 43 (Cont'd.)

- (21) $92.6 \times 157.2 =$ _____
 (22) $657.7 \times 84.3 =$ _____
 (23) $285.2 \times 7.8 =$ _____
 (24) $1,952 \times 86.1 =$ _____
 (25) $9.8 \times 605.4 =$ _____
 (26) $47.7 \times 16.35 =$ _____
 (27) $4,907 \times 38.4 =$ _____
 (28) $43.19 \times 6.9 =$ _____
 (29) $2,855 \times 72.6 =$ _____
 (30) $89 \times 256.2 =$ _____

Answers

21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

JOB No. 43 (Cont'd.)

09	09	09	09	09	09	09	09	09
18	18	18	18	18	18	18	18	18
27	27	27	27	27	27	27	27	27
36	36	36	36	36	36	36	36	36
45	45	45	45	45	45	45	45	45
54	54	54	54	54	54	54	54	54
63	63	63	63	63	63	63	63	63
72	72	72	72	72	72	72	72	72
81	81	81	81	81	81	81	81	81
0	0	0	0	4	3	5	0	0

Fixed-Decimal Point
9-Column Machine

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	_____	Number of wrong answers.....	_____
Gross strokes..... (Multiply 15 by number of problems completed)	_____	Number of correct answers.....	_____
Minutes.....	3	Net strokes..... (Multiply 15 by number of correct answers)	_____
Gross strokes a minute..... (Divide gross strokes by 3)	_____	Net strokes a minute..... (Divide net strokes by 3)	_____



SALES DISTRIBUTION AND REPORTS

Warm-Up Drill

Complete Warm-Up Drill I, page 95. Compute strokes and record results in the usual manner.

Sales Distribution and Reports

Sales are distributed among departments to determine how much business each department is doing.

To Complete Problems (1) to (17):

1. Add vertically the columns for Dept. 1, Dept. 2, and Dept. 3.
2. Crossfoot each date for the Total.
3. Add the Total column.
4. Check the answer by crossfooting the totals for the departments.



Crossfooting Amounts for a Sales Analysis

JOB No. 44
SALES DISTRIBUTION
AND REPORTS

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

Sales Distribution					Date 5/15/--
19-- May	Dept. 1	Dept. 2	Dept. 3	Total	
1	33.34	41.23	40.45	(4) _____	
2	44.45	33.45	35.30	(5) _____	
3	85.54	52.55	63.01	(6) _____	
4	54.43	55.53	51.05	(7) _____	
5	83.32	53.55	60.48	(8) _____	
6	92.21	65.31	74.24	(9) _____	
8	61.12	31.35	40.75	(10) _____	
9	42.23	25.54	24.63	(11) _____	
10	83.34	63.54	63.50	(12) _____	
11	64.45	54.22	55.05	(13) _____	
12	85.54	52.51	65.90	(14) _____	
13	94.43	61.45	70.46	(15) _____	
15	33.32	45.11	43.52	(16) _____	
(1)	(2)	(3)	(17)		

Answers

1	
2	
3	
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12	
13	
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15	
16	
17	

JOB No. 44 (Cont'd.)

DEPARTMENTAL SALES DISTRIBUTION

Jan. 4, 19--

SALES CLERK B. Walker

INVOICE NO.	TOTAL AMOUNT	DEPT. 1	DEPT. 2	DEPT. 3	DEPT. 4	DEPT. 5
126	5 16	5 16				
127	50 16		50 16			
128	40 16	10 00	6 16	16 00	8 00	
129	6 25	2 15			1 00	3 10
130	4 26				4 26	
131	5 16			5 16		
132	7 45	3 02		3 25		1 18
133	7 38		5 37		2 01	
134	13 69	5 46			2 02	6 21
135	6 28	2 00	2 05	2 23		
136	8 38	2 53	1 30	4 55		
137	15 27				7 27	8 00
138	8 58	3 14	2 02	1 00		2 42
139	8 28	4 44		2 64	1 20	
140	9 39	3 9	4 00		5 00	
141	67 90	24 00		30 50	7 10	6 30
142	72 70	40 00	6 50	4 20	22 00	
143	83 80	23 00	20 40	20 00	20 40	
144	94 90	8 90	23 00	23 00	40 00	
Totals	(18)	(19)	(20)	(21)	(22)	(23)

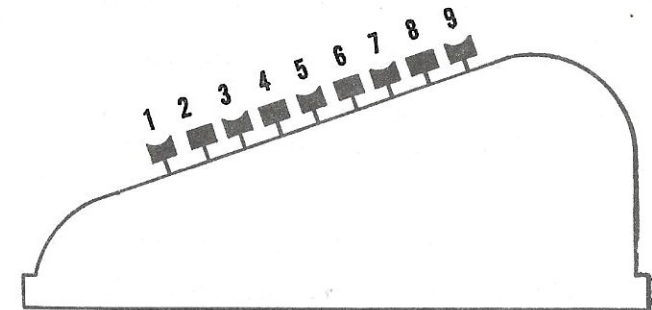
JOB No. 44 (Cont'd.)

To Complete Problems (18) to (23):

- Find the Totals of the six columns.
- The Totals of the last five columns should equal the sum of the Total Amount column.

Answers

18
19
20
21
22
23



Odd-Numbered Keys Are Concave.
Even-Numbered Keys Are Flat.

To Complete Problems (24) to (50):

1. Crossfoot to determine each Salesman's Weekly Total.
2. Add vertically to determine each Daily Sales Total.
3. Add the Salesman's Weekly Total column to determine the grand total.
4. Prove your work by crossfooting Daily Sales Totals. The answer should be the same as the total found in Step 3.

UNIVERSAL PRODUCTS							
Sales Report							
Stock #4261							
Week Ending Oct. 19							
Salesman	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Salesman's Weekly Total
A. Adams	33.34	44.45	55.94	44.32	52.34	64.07	(24)
J. Clark	74.63	83.45	95.47	83.68	94.03	93.64	(25)
E. Loder	34.73	43.06	63.48	54.55	65.84	74.22	(26)
R. Maice	42.66	43.45	55.99	44.37	57.32	62.66	(27)
P. Opera	55.54	64.73	83.60	74.24	84.92	92.63	(28)
A. Santo	66.37	63.45	75.90	64.22	72.68	84.93	(29)
K. Young	33.72	32.45	45.33	33.73	43.54	54.52	(30)
Daily Sales Total	(31)	(32)	(33)	(34)	(35)	(36)	(37)

Answers

24	
25	
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27	
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31	
32	
33	
34	
35	
36	
37	

JOB No. 44 (Cont'd.)

Date Jan. 10, 19--							
SALES REPORT				Store 39			
Green Vegetables							
Salesman	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Weekly Total
1	15.42	16.42	24.25	27.60	38.05	39.45	(38)
2	16.35	15.31	26.37	28.21	37.45	48.30	(39)
3	24.65	14.67	35.46	35.43	36.43	39.43	(40)
4	17.62	15.24	26.40	23.05	42.40	38.40	(41)
5	18.95	24.50	28.04	25.73	46.32	49.95	(42)
6	17.53	28.75	35.96	26.00	47.32	58.90	(43)
Daily Sales Total	(44)	(45)	(46)	(47)	(48)	(49)	(50)

Timed Drill

ARISTA CANDY AND ICE CREAM						
WEEKLY SALES REPORT				March 6, 19--		
Salesman	Mon.	Tues.	Wed.	Thurs.	Fri.	Weekly Total
J. Acker	80.80	81.90	91.68	83.75	94.96	(1)
B. Cook	61.75	62.82	70.78	60.90	73.85	(2)
E. Marks	72.63	73.75	81.89	71.05	89.86	(3)
T. Young	50.95	51.05	61.10	51.15	71.08	(4)
TOTALS	(5)	(6)	(7)	(8)	(9)	(10)

Answers

38	
39	
40	
41	
42	
43	
44	
45	
46	
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49	
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JOB No. 44 (Cont'd.)

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. Place this book on the desk in the same position as paper for a penmanship lesson.
2. Place the calculator to the right of the book.
3. Sit in a comfortable, erect position with your feet flat on the floor.
4. Hold a pencil in the right hand with the point away from the body and the thumb against the palm of the hand.
5. Record answers rapidly.
 - a. Look at the answer in the dials and keep it in mind.
 - b. Write the answer in the proper space.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.

Timed Drill

1	
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4	
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7	
8	
9	
10	

LEDGER SHEETS

Warm-Up Drill

Complete Warm-Up Drill I, page 102. Compute strokes and record results in the usual manner.

Ledger Sheets

Accounts receivable ledger sheets are used to record transactions with customers. **Accounts payable** ledger sheets record transactions with creditors.

In an accounts receivable ledger sheet, sales to the customer are recorded in the Charge column. Cash paid and the value of merchandise returned by the customer are recorded in the Credit column. The difference between the two columns represents the balance that the customer owes.

To Complete Problem (1):

Check the additions (called "footings") of the Charge and Credit columns. If the totals correspond with your answer, place a small check (✓) next to them. If they do not correspond, locate and correct the error.

When the addition of both columns is checked, subtract the total of the Credit column from the total of the Charge column. Compare the difference with the amount in the Balance column. If it is correct, place a check next to the balance. If the balance is incorrect, cross out the amount and write in the correct balance. Write the verified amounts in the answer box under each column.

JOB No. 45

LEDGER SHEETS

Name _____

Period _____ Date _____

 No. of Errors _____
 Strokes in _____
 Warm-Up Drill _____
 Rating _____

(1)

NAME		ADDRESS		SHEET NO. 1		TERMS: 2% -- 10 days		CREDIT LIMIT: \$2,000.00	
McCord, W. W.		47 East Elm Boulevard Newton, Mass.							
DATE		CHARGE	BALANCE	DATE		CREDIT			
19--	Jan. 3 #1267	5687		19--	Jan. 6 Cash #68	5687			
	6 #1586	3755			13 Return #163	5000			
	8 #1862	6745			15 Cash #84	3755			
	12 #2180	2831							
	15 #2463	2840	74.16						
		21858							

Answers

(2)

Find the balance on the following ledger sheet:

NAME		ADDRESS		SHEET NO. 1		TERMS: 5% -- 20 days		CREDIT LIMIT: \$2,000.00	
Comerk, R.		1960 First St. Chicago 8, Ill.							
DATE		CHARGE	BALANCE	DATE		CREDIT			
19--	Jan. 6 #4267	460		19--	Jan. 10 Cash #34	781			
	10 #6351	321			16 Cash #46	455			
	15 #8643	455			25 Cash #63	345			
	18 #9841	345							

Answers

JOB No. 45 (Cont'd.)

Timed Drill

Find the balance on each of the following ledger sheets:

(1)

NAME <i>Opal, A.</i>					SHEET NO. <i>1</i>				
ADDRESS <i>600-5th Ave. Brooklyn 16, N. Y.</i>					TERMS: <i>2% - 10 days</i> CREDIT LIMIT: <i>\$2,500.00</i>				
DATE		CHARGE	BALANCE	DATE		CREDIT			
<i>Jan. 6</i>	<i>#6751</i>	<i>3560</i>		<i>Jan. 12</i>	<i>Cash #126</i>	<i>3560</i>			
<i>10</i>	<i>#7540</i>	<i>8355</i>		<i>18</i>	<i>Return #345</i>	<i>8355</i>			
<i>12</i>	<i>#8321</i>	<i>2841</i>		<i>24</i>	<i>Cash #241</i>	<i>2841</i>			
<i>16</i>	<i>#9640</i>	<i>5967</i>							
<i>22</i>	<i>#12650</i>	<i>3455</i>							
<i>26</i>	<i>#14583</i>	<i>5824</i>							

Answers

(2)

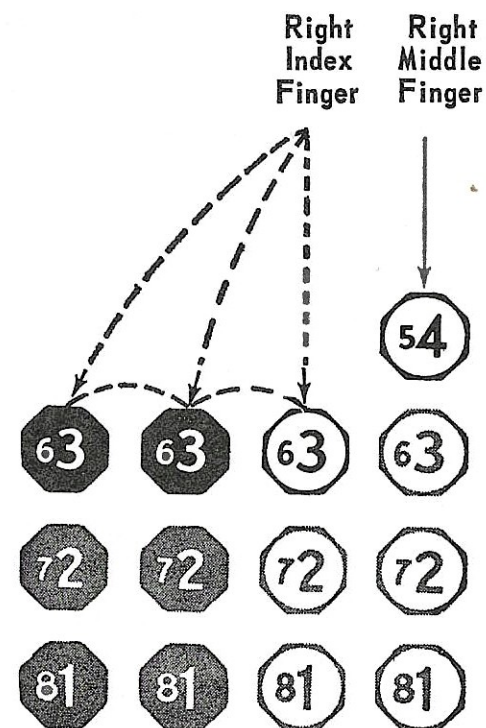
NAME <i>Blackwell & Co., R. J.</i>					SHEET NO. <i>1</i>				
ADDRESS <i>76-78 Broadway New York 44, New York</i>					TERMS: <i>2/10 net</i> CREDIT LIMIT: <i>\$1,500.00</i>				
DATE		CHARGE	BALANCE	DATE		CREDIT			
<i>Jan. 2</i>	<i>#5768</i>	<i>7449</i>		<i>Jan. 2</i>	<i>Cash #401</i>	<i>4650</i>			
<i>2</i>	<i>#5870</i>	<i>5000</i>		<i>4</i>	<i>Return #502</i>	<i>5000</i>			
<i>4</i>	<i>#5901</i>	<i>5060</i>		<i>6</i>	<i>Cash #406</i>	<i>2449</i>			
<i>9</i>	<i>#6207</i>	<i>4245</i>		<i>8</i>	<i>#426</i>	<i>5000</i>			
<i>12</i>	<i>#7582</i>	<i>3459</i>							
<i>15</i>	<i>#7967</i>	<i>5886</i>							
<i>16</i>	<i>#8154</i>	<i>4650</i>							

Answers

JOB No. 45 (Cont'd.)

Timed Drill

Do Timed Drill Problems (1) and (2) in the usual manner.



46

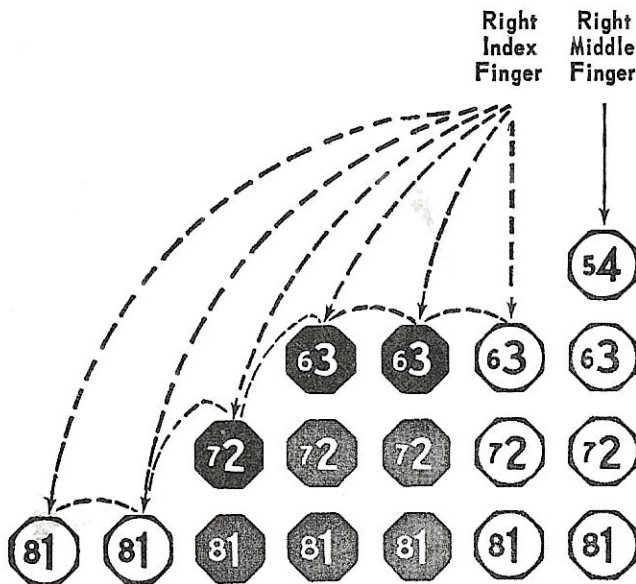
TOUCH ADDITION Seven-Digit Numbers

Warm-Up Drill

Complete Warm-Up Drill A, page 17. Compute strokes and record results in the usual manner.

Touch Addition Seven-Digit Numbers

1. Begin at the left of the number.
2. Strike keys for the first six digits with the right index finger.
3. Strike the units digit with the right middle finger.
4. Strive for an even, rhythmic action.



JOB No. 46
TOUCH ADDITION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

To Complete Problem (1):

1. Strike 10,000.00, 1,000.00, 200.00, 30.00, 3.00, and .30 with the right index finger.
2. Strike 4 with the right middle finger.
3. Before proceeding with Problem (1), strike 11,233.34 until an even, rhythmic action is achieved.

(1)	(2)	(3)	(4)
11,233.34	12,234.32	2.85	20,776.89
20,126.04	33,344.45	45,862.34	.70
49,327.57	11,123.45	562.49	5,348.50
80,326.45	32,122.34	.25	52.05
45,726.23	36,374.45	94,554.33	40.37
30,039.73	43,832.11	4,562.69	74,832.11
59,362.12	57,383.22	.04	493.83
44,083.67	12,364.74	25.40	4.77
83,704.28	37,588.62	31.80	433.26
45,980.32	24,367.48	4,673.23	73.88
(5)	(6)	(7)	(8)
94,943.10	40,436.47	11.73	938.37
837.04	1.52	27,564.48	3.53
8,400.62	.58	.98	46,183.36
20,722.69	49,750.32	559.15	12.38
4,105.68	36.38	8,387.05	12,545.82
900.94	895.23	91.56	67.34
736.41	36,671.33	79,117.32	87.17
18,667.41	1.73	7.17	57,374.55
4,060.40	1.86	816.99	129.57
44,653.94	319.54	86.38	55.25
1,528.21	46.79	93,397.19	95.17
45.52	6.19	796.50	921.00

Answers

1	
2	
3	
4	
5	
6	
7	
8	

JOB No. 46 (Cont'd.)

J. P. SIMPSON COMPANY
Trial Balance

April 30, 19--

[illegible]

(9)

(10)

Difference,
if any

JOB No. 46 (Cont'd.)

Trial Balances

Amounts on the left side of the ledger account are called **debits**. Amounts on the right side of the ledger account are called **credits**.

The **trial balance** lists the accounts and their balances arranged in the debit and credit columns. The total of the debit column should equal the total of the credit column.

To Complete Problems (9) to (12):

Add the debit and credit columns and record the totals. If the totals are not equal, subtract one from the other and record the difference at the bottom of the trial balance.

To Improve Your Work

1. Read numbers as a whole unit instead of individual digits.
2. In addition problems, strike the keys separately for digits in each number.
3. Use a rhythmic, bounce touch.
4. Do not pause between strokes.
5. Depress each key fully before releasing it.
6. Keep your eyes on the written numbers. Do not look at the keyboard of the calculator.
7. Do not use a guide. Train your eyes to travel down the column of numbers unaided.

Name.

RONALD E. COLLINS COMPANY
Trial Balance

April 30, 19--

1	Cash	546919					
2	Petty Cash	10000					
3	Notes Receivable	251000					
4	Accounts Receivable	449042					
5	Reserve for Bad Debts					30620	
6	Merchandise Inventory	3475200					
7	Supplies	161500					
8	Prepaid Insurance	36000					
10	Equipment	250000					
11	Reserve for Depreciation of Equipment					70000	
20	Notes Payable					140000	
21	Accounts Payable					366892	
30	Ronald E. Collins, Capital					1760000	
31	Ronald E. Collins, Drawing	400000					
40	Sales					6754168	
41	Sales Returns and Allowances	395200					
42	Sales Discounts	144500					
50	Purchases	3012900					
51	Purchases Returns and Allowances					208152	
52	Purchases Discounts					297970	
60	Delivery Expense	50200					
61	Miscellaneous Expense	94100					
62	Rent Expense	400000					
63	Salary Expense	924000					
70	Interest Income					18050	
80	Interest Expense	21130					

(11)

(12)

Difference,
if any

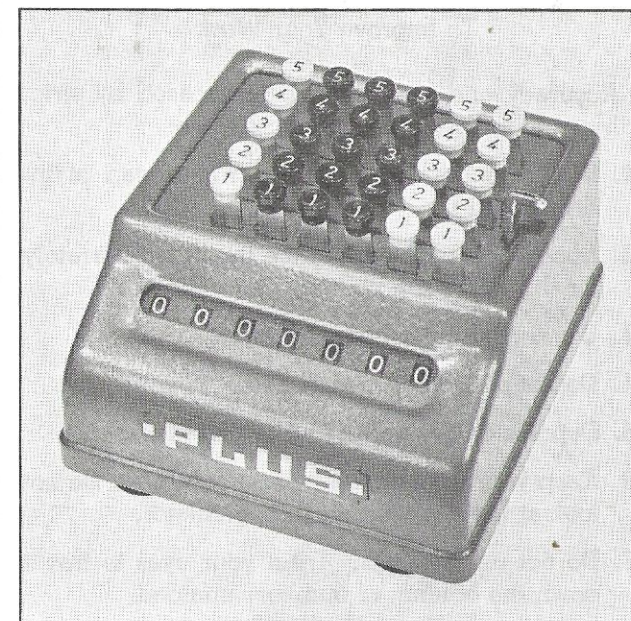
JOB No. 46 (Cont'd.)

(13)	(14)	(15)	(16)	Answers
3.50	44,429.78	70,746.06	3,143.82	13
35,533.90	5.92	7.38	34,869.01	14
43.77	1,603.64	9.62	13.57	15
405.71	9.05	5.23	69.80	16
11.35	8.70	8.99	44,323.70	
8,353.12	3.98	72,139.57	301.48	
8.99	47.77	1.36	6.35	
72,998.00	10,032.20	97,925.64	67,042.10	
43.34	22.25	4.35	.07	
5.55	1,698.00	2,492.80	96.23	
2,034.30	46.05	631.28	30,384.79	
34,145.05	29,627.38	487.05	62.96	

Timed Drill

(1)	(2)	(3)	(4)	Timed Drill
32,056.80	10,958.95	61,091.20	68,391.18	1
.03	50.29	.47	984.67	2
61.99	718.44	7,492.53	.76	3
38,128.02	69.08	.58	83,176.92	4
92.96	57,465.78	69.93	215.94	
580.79	.45	.69	.56	
14.94	.76	75,643.26	27.77	
77,644.70	51,214.30	61.99	91,581.95	
.07	.54	.26	.38	
8,228.94	7,561.81	9,999.58	70,847.25	
.82	92,628.71	7.20	8.98	
46,471.24	.99	175.36	9,772.65	

JOB No. 46 (Cont'd.)



**Plus
Part-Keyboard**

To complete Problems (13) to (16), proceed as instructed on page 115.

Timed Drill

Do Timed Drill Problems (1) to (4) in the usual manner.



SPEED DRILL **Four-Column Addition**

This drill contains 15 problems of 50 strokes each, a total of 750 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

To Complete Problems (1) to (15):

- Complete each problem once, writing the answer in the space directly below the problem.
- Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - If the second answer is not the same as the first, write the second answer directly below the first answer.
- Record in the Time Record at the right the time that was required to complete the drill.
- Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
- When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 47 SPEED DRILL	Name _____	No. of Errors _____
	Period _____ Date _____	Rating _____

(1)	(2)	(3)	(4)	(5)
25.31	.09	31.97	3.13	2.25
.89	9.56	5.79	.15	3.91
5.63	9.57	2.21	3.83	73.78
.16	78.28	.86	6.41	.63
9.78	.03	60.57	.88	7.30
1.10	.47	7.51	4.89	1.79
7.58	.99	9.97	1.87	8.28
26.25	33.60	65.18	61.80	77.85
.06	72.13	.23	3.98	2.30
8.68	36.21	.68	.53	.91
46.75	3.92	.40	1.37	7.75
3.43	3.78	59.50	67.48	.56

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

(6)	(7)	(8)	(9)	(10)
.07	.87	17.82	31.82	38.13
6.20	2.46	.72	9.23	.03
2.76	83.53	.32	1.16	3.44
92.58	3.54	9.08	.12	.78
.67	3.86	.63	8.66	3.92
61.68	47.36	16.26	4.15	12.31
5.69	73.42	73.42	67.23	46.31
.34	2.37	.28	.17	.89
3.57	22.13	65.91	6.75	58.37
72.22	1.73	.18	.88	84.90
7.64	36.03	4.37	35.45	.87
.35	.45	7.46	2.19	65.54

Answers	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

JOB No. 47 (Cont'd.)

(11)	(12)	(13)	(14)	(15)	Answers
37.51	50.91	42.93	91.14	.29	11
6.11	8.00	4.64	.42	.02	12
47.47	90.76	4.77	6.77	.78	13
81	.33	78.81	27.91	86.00	14
8.30	.35	3.08	2.43	72.18	15
.26	7.68	.53	.38	91.69	
97.44	.52	.99	5.85	92.50	
3.36	96.03	72.19	65.90	2.00	
.09	6.70	46.06	.75	27.72	
.99	.66	.13	.03	28.36	
97.92	48.95	.70	9.98	.56	
.81	83.67	41.37	59.61	9.28	



Correct Position at Calculator

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 50 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 50 by number of correct answers)
Gross strokes a minute..... (Divide gross by 3)	Net strokes a minute..... (Divide net strokes by 3)

Warm-Up Drill

Complete Warm-Up Drill B, page 23.

Credit Balances

Credit balances (also called "negative," "minus," "cr.," and "-" balances, or a number written in red) occur when a subtrahend is subtracted from a smaller minuend.

Standard Calculator

1. Add the minuend into the machine using the touch method.
2. Using **small** numbers, place the right index finger on the key for the first digit of the subtrahend.
For all calculators: Depress four number 9 keys to the left of the column you are holding.
3. Depress keys for the subtrahend using **small** numbers **less one**.
4. Disregard the 9's in the answer dials and hold **small** numbers for **one less** than the amount in the dials.
5. Depress this number **twice**. Write this answer with "cr." beside it.

Duplex Calculator

1. Enter the minuend in the lower dials.
2. Operate the lower-to-upper dials transfer key to transfer the minuend to the upper dials.
3. Enter the subtrahend in the lower dials.
4. Operate the direct subtract bar or lever.
5. Disregard the 9's in the upper dials and depress **small** numbers for **one less** than the amount in the upper dials.
6. The number in the lower dials is the credit balance. Write the answer with "cr." beside it.

(121)

JOB No. 48

CREDIT BALANCES

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

Standard Calculator

To Complete Problem (1):

1. Add 15 into the machine using the touch method.
2. Place the right index finger on **small 1** -.
For all calculators: Depress four number 9 keys to the left of the column you are holding.
3. Depress keys for **small 17**.
4. Hold **small 6** (7 in the answer dial, **less 1**)
5. Depress **small 6** twice. The answer is 3 cr.

Duplex Calculator

To Complete Problem (1):

1. Enter 15 in the lower dials.
2. Operate the lower-to-upper dials transfer key to transfer 15 to the upper dials.
3. Enter 18 in the lower dials.
4. Operate the direct subtract bar or lever.
5. Disregard the 9's in the upper dials and depress **small 6** (7 in upper dial, **less 1**).
6. The answer, 3, will be in the lower dials. Write the answer as 3 cr.

(1)	(2)	(3)	(4)	(5)
15	40	628	243	281
- 18	- 84	-651	-628	-402
(6)	(7)	(8)	(9)	(10)
46	388	74	841	79
-240	-864	- 97	-969	-831

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

(121)

JOB No. 48 (Cont'd.)

(11)	(12)	(13)	(14)	(15)	Answers
5.67	4.21	1.47	4.27	3.98	11
2.26-	5.97	2.53	2.09	8.36-	12
8.99	.68-	1.26-	4.39-	3.22-	13
3.45-	9.24	1.98	3.80	4.49	14
7.06	6.22-	.87-	2.68	3.26	15
.47-	.11-	2.38-	5.50-	8.50-	
9.21-	5.34-	6.41-	9.80-	7.32-	
.72	4.63	7.26-	.37	.57-	
7.21	3.00	9.00-	.34-	.35-	
6.48	1.02	3.04	5.60	6.27-	

Timed Drill

(1)	(2)	(3)	(4)	(5)	Timed Drill
.63	.35	5.67	8.88	7.58	1
4.25-	.27	2.36-	.99	3.89	2
3.36	.53-	.52	7.67-	8.29-	3
.47-	3.38	.48-	3.45	8.50	4
8.11-	4.49-	7.80	.26-	6.35	5
1.99	.89	.65-	5.60-	7.55	
2.58-	5.79	3.10	1.92-	2.73-	
.20	.91-	5.63-	9.99-	8.62-	
.74-	5.21-	1.04	.34	2.00	
.36	4.97-	.90-	2.20	1.93-	
5.15	.33	.12	8.38	6.40	
6.60-	1.47	.83	6.29-	8.36-	
7.82-	2.69	.94	.21	3.03	
.59	.17-	.27	.48	3.04	
.87	.79	1.68	1.27	4.92	
8.33-	6.52	.42	.22	6.32-	
4.24	9.23-	4.28-	7.28-	9.56-	

JOB No. 48 (Cont'd.)

To Complete Problems (11) to (15):

1. Add and subtract the numbers as they occur.
2. Disregard any credit balances until the problem is completed.
3. If the total is a credit balance, follow instructions in this job to arrive at the answer.

Timed Drill

Do Timed Drill Problems (1) to (5) in the usual manner.

Warm-Up Drill

Complete Warm-Up Drill C, page 47. Compute strokes and record results in the usual manner.

Division

Division is the most complex of the four arithmetic processes: addition, subtraction, multiplication, and division. It may be advantageous to solve some division problems by the reciprocal method rather than the trial-divisor method described in Jobs 9 and 19.

The key-driven calculator solves many multiplication problems very efficiently. The reciprocal method is an indirect method of division where the **dividend is multiplied by the reciprocal of the divisor.**

The reciprocal of a number is obtained by dividing 1.0 by that number. For example, to find the reciprocal of 2:

$$\begin{array}{r} .5 \text{ is the reciprocal of } 2 \\ 2 \overline{) 1.0} \end{array}$$

By the reciprocal method $2 \overline{) 8}$ would be:

$$\begin{array}{r} 8 = \text{dividend} \\ \times .5 = \text{reciprocal of divisor } 2 \\ \hline 4.0 = \text{quotient} \end{array}$$

The Table of Reciprocals on pages 149 and 150 will make it unnecessary to divide 1.0 by the divisor to find the reciprocal of the divisor.

In many problems the answer will be more accurate if you multiply from left to right and drop off the keyboard as described in Job 31.

Record answers to three decimal places.

JOB No. 49
DIVISION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

(Reciprocal)

(1) $1,398 \div 400 = 1,398 \times .0025 =$ _____

(2) $2,562 \div 500 = 2,562 \times .002 =$ _____

(3) $621 \div 800 = 621 \times .00125 =$ _____

(4) $311 \div 20 = 311 \times$ _____

(5) $991 \div 25 = 991 \times$ _____

(6) $695 \div 89 = 695 \times .01124 =$ _____

(7) $321 \div 72 = 321 \times .01389 =$ _____

(8) $858 \div 17 = \times =$ _____

(9) $475 \div 67 = \times =$ _____

(10) $652 \div 41 = \times =$ _____

(11) $1,897 \div 25 =$ _____

(12) $397 \div 32 =$ _____

(13) $430 \div 8 =$ _____

(14) $351 \div 44 =$ _____

(15) $166 \div 73 =$ _____

Answers

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

JOB No. 49 (Cont'd.)

Find the number of pounds:

(16) 679 ozs. = _____ lbs.

(17) 946 ozs. = _____ lbs.

(18) 624 ozs. = _____ lbs.

(19) 970 ozs. = _____ lbs.

(20) 657 ozs. = _____ lbs.

Find the number of dozen:

(21) 117 pieces = _____ doz.

(22) 960 pieces = _____ doz.

(23) 885 pieces = _____ doz.

(24) 466 pieces = _____ doz.

(25) 367 pieces = _____ doz.

Timed Drill

Find the number of feet:

(1) $5,029 \div 25 =$ _____ (6) 821 in. = _____ ft.

(2) $853 \div 81 =$ _____ (7) 902 in. = _____ ft.

(3) $761 \div 73 =$ _____ (8) 324 in. = _____ ft.

(4) $973 \div 70 =$ _____ (9) 651 in. = _____ ft.

(5) $494 \div 82 =$ _____ (10) 82 in. = _____ ft.

Answers

16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

JOB No. 49 (Cont'd.)

Reciprocals are especially helpful when a constant divisor is being used. Some commonly used reciprocals include:

Reciprocal

Dozen	12	.08333
Gross	144	.00694
Pound	16	.0625
Hour	60	.01667
Feet	12	.08333
Year	360	.00278
Year	365	.00274
Month	28	.03571
Month	30	.03333
Month	31	.03226

In Problems (16) to (25), record answers to one decimal place.

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner. In Problems (1) to (5), record answers to three decimal places, and in Problems (6) to (10), to one decimal place.

NOTE: Your next assignment in this book is Job No. 51. Before proceeding with Job. No. 51, ask your instructor about Job No. 50, which is Test No. 5.

Timed Drill

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	



PRORATING

Warm-Up Drill

Complete Warm-Up Drill D, page 54. Compute strokes and record results in the usual manner.

Prorating

Prorating means to distribute a total amount proportionately. For example, the cost of rent for a department store may be distributed among the departments on the basis of the number of square feet that each department occupies.

To prorate:

1. Find the total of the basic factor.
2. Divide the amount to be prorated by the basic factor to find the prorating factor. Carry the division to at least 6 decimal places if the division results in a remainder.
3. Multiply each unit by the prorating factor. Record the answer to the nearest cent.
4. Total the shares prorated to each unit. If the sum is within a cent or two of the amount to be prorated, change the share (or shares if more than one cent is involved) that has the highest decimal by a cent. The total of the shares prorated to each unit should equal the amount to be prorated.

JOB No. 51
PRORATING

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

Distribute rent of \$7,200 to each of the five departments on the basis of square feet occupied.

Department	Square Feet Occupied	Amount Charged Each Dept.
A	600	(1) _____
B	900	(2) _____
C	800	(3) _____
D	700	(4) _____
E	600	(5) _____
Total	3,600	\$7,200

Prorating Factor \$2 (Rent per square foot)

To Complete Problems (1) to (5):

1. Add to find the total square feet, 3,600.
2. Divide \$7,200 by 3,600 square feet to find the prorating factor, \$2.
3. Multiply \$2 per square foot by the square feet occupied by each department.
4. Total the Amount Charged Each Department column. It should equal \$7,200.

Distribute profits of \$3,648 to each person on the basis of his investment.

Person	Investment	Profit
A	\$320	(8) _____
B	650	(9) _____
C	700	(10) _____
D	500	(11) _____
E	450	(12) _____
F	600	(13) _____
Total	(6)\$ _____	(14) _____

(7) Prorating Factor \$ _____ (Profits per dollar invested)

Answers

1
2
3
4
5
6
7
8
9
10
11
12
13
14

JOB No. 51 (Cont'd.)

Distribute overhead of \$989 to each of the six departments on the basis of sales.

Department	Sales	Amount Charged Each Dept.
A	\$974	(17) _____
B	442	(18) _____
C	912	(19) _____
D	880	(20) _____
E	734	(21) _____
F	939	(22) _____
Total	(15) _____	(23) _____

(16) Prorating Factor \$_____ (Overhead per sales dollar)

Timed Drill

Distribute delivery costs of \$864 to each department on the basis of sales.

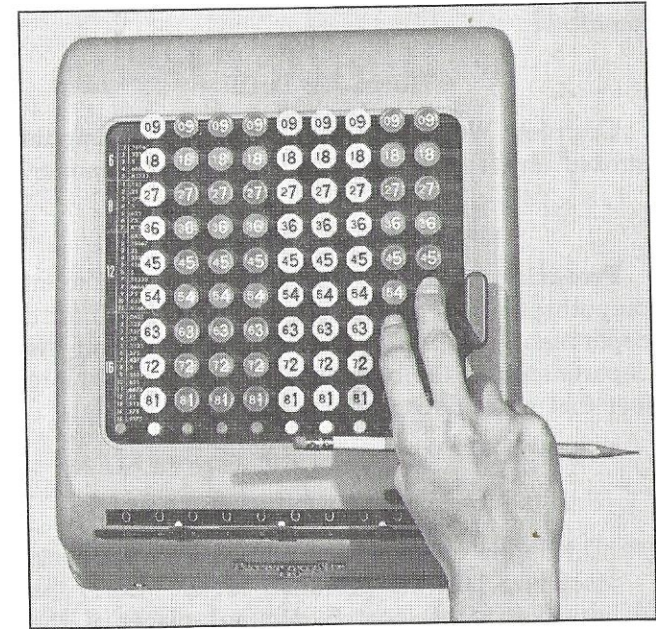
Department	Sales	Amount Charged Each Dept.
A	\$1,300	(3) _____
B	2,400	(4) _____
C	800	(5) _____
D	1,650	(6) _____
E	750	(7) _____
F	1,800	(8) _____
Total	(1) _____	(9) _____

(2) Prorating Factor \$_____ (Delivery costs per sales dollar)

Answers

15
16
17
18
19
20
21
22
23

JOB No. 51 (Cont'd.)



Position of Fingers to Strike 34
When Adding, Strike Keys Individually.

Timed Drill

Do Timed Drill Problems (1) to (9) in the usual manner.

Timed Drill

1
2
3
4
5
6
7
8
9

RECONCILIATION OF BANK STATEMENTS

Warm-Up Drill

Complete Warm-Up Drill E, page 61. Compute strokes and record results in the usual manner.

Reconciliation of Bank Statements

Proving the accuracy of the balance in the checkbook and the balance on the bank statement is called **reconciling the bank balance**.

1. To find the Adjusted Checkbook Balance:

- Accumulate the Additions and record the amount below the Checkbook Balance.
- Add the Checkbook Balance and the Additions.
- Accumulate the Deductions.
- Subtract the Deductions from the total of Step 1b and record the amount as the Adjusted Checkbook Balance.

2. To find the Adjusted Bank Balance:

- Accumulate the Additions and record the amount below the Bank Balance.
- Add the Bank Balance to the Additions.
- Accumulate the Deductions.
- Subtract the Deductions from the total of Step 2b and record the amount as the Adjusted Bank Balance.

3. The Adjusted Checkbook Balance and the Adjusted Bank Balance should be the same.

JOB No. 52 RECONCILIATION OF BANK STATEMENTS

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in Warm-Up Drill _____
Rating _____

Reconciliation of Bank Statement

October 31, 19—

Checkbook Balance.....\$563.79	Bank Balance.....\$735.42
Additions:	Additions:
Deposit omitted..\$324.35	Deposit Oct. 31..\$324.35
Note collected... 100.00 (1)	Deposit Nov. 1... 125.36 (5)
	(2)
Deductions:	Deductions:
Service charge..\$ 2.75	Outstanding checks:
Counter check.. 91.33	#462.....\$ 50.00
Error in Check	471..... 142.00
#459..... 10.00 (3)	472..... 72.38
	473..... 36.69 (7)
Adjusted Checkbook Balance \$ (4)	Adjusted Bank Balance \$ (8)

Reconciliation of Bank Statement

December 31, 19—

Checkbook Balance.....\$438.42	Bank Balance.....\$684.76
Additions:	Additions:
Deposit omitted..\$235.29	Deposit Dec. 31..... 241.85
Error in Check	
#238..... 1.00 (9)	
	(13)
	(10)
Deductions:	Deductions:
Service charge..\$ 2.25	Outstanding checks:
Counter check.. 102.00	#250.....\$235.10
Collection charge 3.00 (11)	252..... 14.05
	356..... 110.00 (14)
Adjusted Checkbook Balance \$ (12)	Adjusted Bank Balance \$ (15)

Answers

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

JOB No. 52 (Cont'd.)

Reconciliation of Bank Account

December 31, 19—

Checkbook Balance.....\$ 78.67	Bank Balance.....\$ 264.88
Additions:	Additions:
Error in Check	Deposit Dec. 31..... 592.64
#650.....\$238.39	
Note collected... 150.00	(16)
	(17)
Deductions:	Deductions:
Service charge..\$ 3.50	Outstanding checks:
Error in Check	#658.....\$162.35
#662..... 10.10	660..... 109.03
	683..... 47.61
Adjusted Checkbook	684..... 85.07
Balance.....\$	(18)
	(19)
	Adjusted Bank Balance....\$
	(20)
	(21)
	(22)

Answers

16	
17	
18	
19	
20	
21	
22	

Timed Drill

Reconciliation of Bank Account

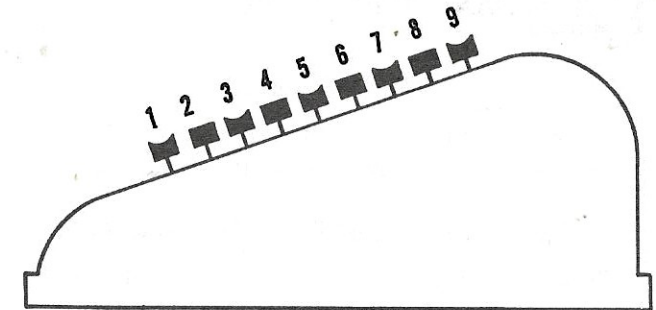
July 31, 19—

Checkbook Balance.....\$ 239.45	Bank Balance.....\$ 748.35
Additions:	Additions:
Deposit omitted..\$175.23	Deposit July 26..... 201.18
Note collected... 165.00	
Error in Check	(4)
#139..... 1.00	
	(1)
	(2)
Deductions:	Deductions:
Service charge..... 3.75	Outstanding checks:
	#135.....\$ 50.38
	170..... 137.42
	171..... 89.63
	172..... 72.70
	173..... 22.47
Adjusted Checkbook	(5)
Balance.....\$	(3)
	Adjusted Bank Balance....\$
	(6)

Timed Drill

1	
2	
3	
4	
5	
6	

JOB No. 52 (Cont'd.)



Odd-Numbered Keys Are Concave.
Even-Numbered Keys Are Flat.

Timed Drill

Do Timed Drill Problems (1) to (6) in the usual manner.

**SPEED DRILL****Four-Column Addition**

This drill contains 15 problems of 50 strokes each, a total of 750 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

To Complete Problems (1) to (15):

1. Complete each problem once, writing the answer in the space directly below the problem.
2. Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - a. If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - b. If the second answer is not the same as the first, write the second answer directly below the first answer.
3. Record in the Time Record at the right the time that was required to complete the drill.
4. Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
5. When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 53**SPEED DRILL**

Name _____

Period _____ Date _____

No. of Errors _____

Rating _____

(1)	(2)	(3)	(4)	(5)
.40	84.50	64.96	61.00	15.98
2.25	.73	42.41	9.11	.30
63.70	36.94	87.54	.72	.82
3.80	5.68	3.33	49.30	85.43
43.63	.17	98.04	6.48	2.06
.97	7.87	3.05	9.82	23.32
44.92	.03	23.23	.13	2.49
.83	.13	.98	6.82	22.96
7.98	71.36	1.12	18.40	53.89
5.74	25.21	.29	67.96	4.18
96.07	.99	7.38	.82	78.11
75.42	78.52	12.70	7.07	.08

(6)	(7)	(8)	(9)	(10)
18.06	17.62	11.14	44.15	99.23
9.84	97.04	71.96	24.45	78.72
91.53	5.45	.18	2.55	.30
2.82	58.94	32.89	.66	38.29
2.42	5.54	.58	8.62	4.39
41.07	13.81	93.07	35.08	.74
.22	3.56	9.32	44.79	37.60
.69	53.18	85.38	2.84	3.61
15.06	70.74	.26	60.34	2.71
6.65	.94	2.19	17.81	8.25
98.45	3.40	1.22	11.23	4.87
.74	.56	.12	3.10	.50

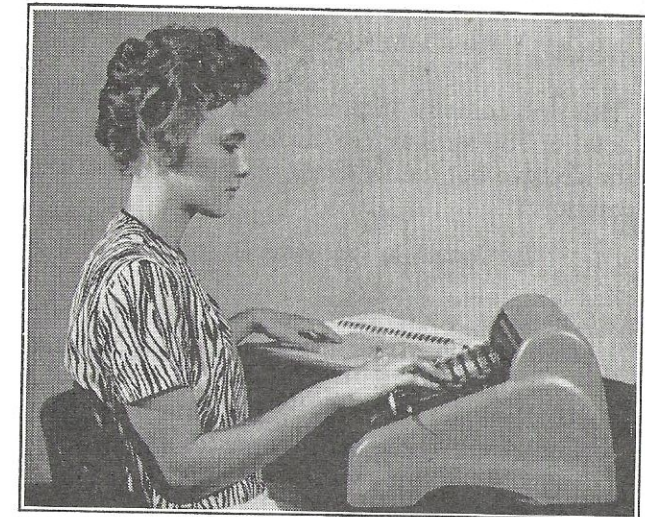
Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Answers

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8	
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10	

JOB No. 53 (Cont'd.)

(11)	(12)	(13)	(14)	(15)	Answers
92.69	7.68	6.69	.66	8.24	11
10.83	64.52	90.54	41.54	.15	12
3.34	7.89	81.42	29.82	93.46	13
.16	.52	.51	5.69	4.65	14
8.31	9.47	43.68	9.13	1.39	15
58.35	.20	6.83	12.05	22.75	
.73	17.70	9.52	74.31	37.53	
46.60	55.39	44.59	.34	.29	
.21	3.67	.48	45.27	24.27	
84.20	.59	.30	67.40	4.32	
43.65	4.59	1.66	.36	4.80	
55.57	2.07	35.32	8.60	73.64	



Correct Position at Calculator

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 50 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 50 by number of correct answers)
Gross strokes a minute..... (Divide gross strokes by 3)	Net strokes a minute..... (Divide net strokes by 3)



PAYROLL

Warm-Up Drill

Complete Warm-Up Drill F, page 68. Compute strokes and record results in the usual manner.

Payroll

Salaries paid on a monthly basis are usually prepared with a payroll table showing the decimal equivalents of days.

Example: $23\frac{1}{2}$ days based on a 26-day month.

1. In the partial payroll table shown below, locate the column headed 26-Day Month.
2. Glance down the column to the decimal equivalent opposite 23 days in the extreme left column. The decimal equivalent is .88462.
3. Refer to the Fractions of Days at the bottom of the Payroll Table. Glance down the 26-Day Month column to where it intersects with $\frac{1}{2}$ in the extreme left column. The decimal equivalent is .01923. .01923 plus .88462 is .90385. Multiply this number by the salary rate.

PAYROLL TABLE											
Decimal Equivalents of Days											
DAYS	24- Day Month	25- Day Month	26- Day Month	27- Day Month	DAYS	28- Day Month	29- Day Month	30- Day Month	31- Day Month	DAYS	
1	.04167	.04	.03846	.03704	1	.03571	.03448	.03333	.03226	1	
2	.08333	.08	.07692	.07407	2	.07143	.06897	.06667	.06452	2	
17	.70833	.68	.65385	.62963	17	.60714	.58621	.56667	.54839	17	
18	.75	.72	.69231	.66667	18	.64286	.62069	.6	.58065	18	
19	.79167	.76	.73077	.7037	19	.67857	.65517	.63333	.6129	19	
20	.83333	.8	.76923	.74074	20	.71429	.68966	.66667	.64516	20	
21	.875	.84	.80769	.77778	21	.75	.72414	.7	.67742	21	
22	.91667	.88	.84615	.81481	22	.78571	.75862	.73333	.70968	22	
23	.95833	.92	.88462	.85185	23	.82143	.7931	.76667	.74194	23	
24		.96	.92308	.88889	24	.85714	.82759	.8	.77419	24	
25			.96154	.92593	25	.89286	.86207	.83333	.80645	25	
26				.96296	26	.92857	.89655	.86667	.83871	26	
					27	.96429	.93103	.9	.87097	27	
					28		.96552	.93333	.90323	28	
					29			.96667	.93548	29	
					30				.96774	30	
FRACTIONS OF DAYS											
$\frac{1}{2}$	.01042	.01	.00962	.00926	$\frac{1}{4}$	.00893	.00862	.00833	.00806	$\frac{1}{2}$	
$\frac{1}{3}$	.02083	.02	.01923	.01852	$\frac{1}{2}$	.01786	.01724	.01667	.01613	$\frac{1}{3}$	
$\frac{1}{4}$	.03125	.03	.02885	.02778	$\frac{3}{4}$	.02679	.02586	.025	.02419	$\frac{3}{4}$	

JOB No. 54
PAYROLL

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

To Complete Problem (1):

1. For a 26-day month on the Payroll Table, 23 days are equal to .88462.
2. Multiply \$300 by .88462. The answer is \$265.39.

Days Worked	Salary Rate	Monthly Basis
(1) 23	\$300	26-day month = _____
(2) 24	320	25-day month = _____
(3) 19	450	27-day month = _____
(4) 25	400	30-day month = _____
(5) 28	650	29-day month = _____

Answers

1
2
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4
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To Complete Problem (6):

1. For a 26-day month on the Payroll Table:

24 days equal .92308
1/2 day equals .01923
 .94231

2. Multiply \$300 by .94231. The answer is \$282.69.

Days Worked	Salary Rate	Monthly Basis
(6) 24 1/2	\$300	26-day month = _____
(7) 21 1/2	700	27-day month = _____
(8) 23 3/4	450	25-day month = _____
(9) 22 1/2	500	26-day month = _____
(10) 26 1/4	600	28-day month = _____

JOB No. 54 (Cont'd.)

PRECISION INDUSTRIES, INC.					
EMPLOYEE NO. <u>1</u>		WEEK ENDING <u>Mar. 29, 19--</u>			
NAME <u>Allen, Walter C.</u>					
DAY	IN	OUT	IN	OUT	DAILY HOURS
M	8:00	12:00	13:00	17:00	8
TU	7:59			17:03	8
W	7:57	12:00	12:58	18:32	9 30
TH	7:52	12:02	12:59	18:05	(11)
F	7:59	12:03	13:00	18:30	(12)
SA					
SU					
WEEKLY HOURS					(13)

PRECISION INDUSTRIES, INC.					
EMPLOYEE NO. <u>2</u>		WEEK ENDING <u>Mar. 29, 19--</u>			
NAME <u>Cromer, Kenneth</u>					
DAY	IN	OUT	IN	OUT	DAILY HOURS
M	7:50	12:00	13:00	17:05	(14)
TU	7:55	12:05	12:59	17:00	(15)
W	7:45	12:03	12:58	14:00	(16)
TH	7:58	12:00	13:00	18:30	(17)
F	8:00	12:00	12:58	18:32	(18)
SA					
SU					
WEEKLY HOURS					(19)

PRECISION INDUSTRIES, INC.					
EMPLOYEE NO. <u>3</u>		WEEK ENDING <u>Mar. 29, 19--</u>			
NAME <u>Darby, Albert W.</u>					
DAY	IN	OUT	IN	OUT	DAILY HOURS
M	8:30	12:00	13:00	17:00	(20)
TU	7:58	12:03	12:55	17:05	(21)
W	8:00			18:30	(22)
TH	7:55			17:03	(23)
F	7:52	12:04	12:59	17:00	(24)
SA					
SU					
WEEKLY HOURS					(25)

PRECISION INDUSTRIES, INC.					
EMPLOYEE NO. <u>4</u>		WEEK ENDING <u>Mar. 29, 19--</u>			
NAME <u>Ellis, Paul L.</u>					
DAY	IN	OUT	IN	OUT	DAILY HOURS
M	7:55			17:03	(26)
TU	7:59	12:03	12:55	16:00	(27)
W	8:59	12:00	12:59	17:00	(28)
TH	8:00			17:01	(29)
F					
SA	8:00	12:01	12:59	17:00	(30)
SU					
WEEKLY HOURS					(31)

Answers

- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 30
- 31

JOB No. 54 (Cont'd.)

When employees are paid on an hourly basis, their time is often recorded on a time-clock card. The time clock prints the time "In" and the time "Out." The clock may be a standard 12-hour clock or a 24-hour clock. On 24-hour clocks, 1:00 p.m. is 13:00, 2:00 p.m. is 14:00, etc.

Use the following regulations to compute the Daily Hours in Problems (11) to (31):

1. The working day is from 8:00 a.m. to 5:00 p.m. (17:00).
2. Employees take one hour for lunch.
3. If employees do not leave the building for lunch they do not punch the time clock, but one hour is always deducted.
4. No time is given for arriving before 8:00 a.m. but deductions are made for arriving after 8:00 a.m.
5. All employees do not leave at exactly 5:00 p.m., but no credit is given for overtime unless the supervisor's initials, "JM," appear on the card.

For Employee No. 1, the Daily Hours for Monday, Tuesday, and Wednesday have been calculated. Determine Daily Hours for Thursday and Friday. Add Daily Hours to get Weekly Hours.

To determine Daily Hours, it may be faster to make mental calculations rather than use the calculator. For Employee No. 1, calculations for Monday, Tuesday, and Wednesday should be:

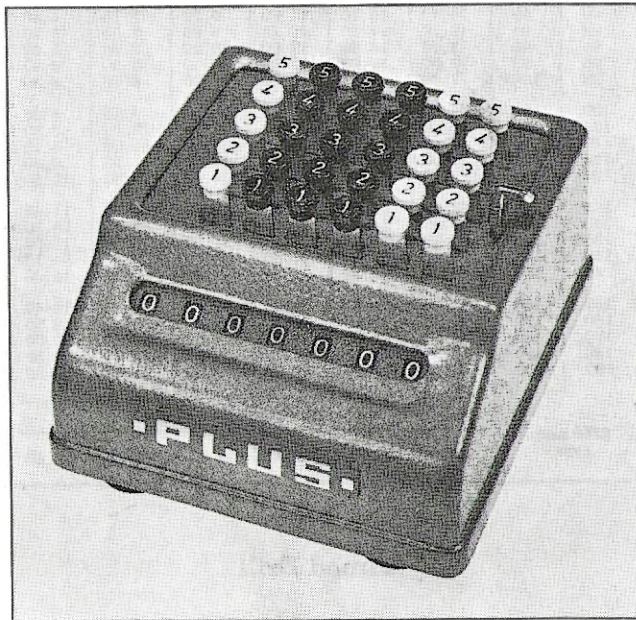
	Hours	Minutes
M 12:00- 8:00 =	4	
17:00-13:00 =	4	
	8	
Tu 17:00- 8:00 =	9	
1 hour for lunch	-1	
	8	
W 12:00- 8:00 =	4	
18:30-13:00 =	5	30
	9	30

JOB No. 54 (Cont'd.)

Information from the time cards is entered on time sheets.

To Complete Problems (32) to (54):

1. Enter the Daily Hours and Weekly Hours for employees 2-4 from the time cards on page 132.
2. Add the Daily Hours of employees 5-15 and enter the total in the Weekly Hours column.
3. For all employees determine the hours of overtime and enter the amount in the Overtime column. All hours worked over 40 are considered overtime.
4. Add each column to get Totals.
5. To prove your work, the total of hours worked each day should be the same as the total Weekly hours.



Plus Part-KeyBoard

JOB No. 54 (Cont'd.)

Name _____

PRECISION INDUSTRIES, INC.										
Time Sheet		Week Ending <u>March 29, 19--</u>								
NO.	EMPLOYEE	DAILY HOURS							WEEKLY HOURS	OVER-TIME
		M	TU	W	TH	F	SA	SU		
1	Allen, Walter C.	8	8	9 ³⁰	9	9 ³⁰			44	4
2	Cromer, Kenneth								(32)	
3	Darby, Albert W.								(33)	
4	Ellis, Paul L.								(34)	
5	Hamilton, Harold D.	8	8	8	8 ¹⁵	9 ⁴⁵		3	(35)	
6	King, Ernest K.	7 ³⁰	6	6	8	8			(36)	
7	Lacey, Donald	8 ³⁰	7 ³⁰	8	7 ³⁰	9			(37)	
8	Matthews, Cecil R.	7 ³⁰	8	8	6	9			(38)	
9	Mayes, Harry M.	8	8	8	9		7	4	(39)	
10	Nichols, Edwin L.	8	8	8	8	8			(40)	
11	Nordyke, David L.	9	8	8	8	8			(41)	
12	Perkins, Bob O.	7 ¹⁵	6	6	9 ³⁰	9 ³⁰			(42)	
13	Sawyer, Jim R.	8	8	8	4	8	4		(43)	
14	Sedberry, Douglas T.	8	8	8	8				(44)	
15	Sewell, Fred G.	9	9	8 ³⁰	8 ³⁰	8 ³⁰	4		(45)	
TOTALS		(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)

Answers

32	
33	
34	
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39	
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41	
42	
43	
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48	
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50	
51	
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53	
54	

JOB No. 54 (Cont'd.)

Determine the total earnings in each of the following problems:

- (55) 5 days @ \$12.35 per day = _____
- (56) 67 pieces @ \$3.40 per C = _____
- (57) 4 1/2 days @ \$16 per day = _____
- (58) 2,450 pieces @ \$3.50 per M = _____
- (59) 40 hours @ \$2.50 + 3 hours overtime @ \$3.75 = _____
- (60) 40 hours @ \$2.75 + 8 hours @ \$4.125 = _____
- (61) 147 pieces @ \$.07 1/2 each = _____
- (62) 5 1/2 days @ \$14.50 per day = _____
- (63) 3,784 pieces @ \$1.38 per M = _____
- (64) 241 pieces @ \$.13 1/2 each = _____

Timed Drill

Days Worked	Salary Rate	Monthly Basis
(1) 23	\$380	25-day month = _____
(2) 25 1/2	300	27-day month = _____
(3) 26 1/4	400	28-day month = _____
(4) 20 1/2	450	24-day month = _____
(5) 23 1/4	500	26-day month = _____

- (6) 5 1/2 days @ \$13.50 a day = _____
- (7) 40 hours @ \$3 + 4 hours overtime @ \$4.50 = _____
- (8) 348 pieces @ \$.12 1/2 each = _____
- (9) 134 pieces @ \$.08 1/3 each = _____
- (10) 4 1/2 days @ \$12.75 a day = _____

Answers

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56	
57	
58	
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62	
63	
64	

Timed Drill

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JOB No. 54 (Cont'd.)

This table is used in the problems of Job 55, page 135.

If the payroll period with respect to an employee is **Weekly**:

And the wages are —		And the number of withholding exemptions claimed is —					
At least	But less than	0	1	2	3	4	5
The amount of income tax to be withheld shall be—							
60	62	11.00	8.70	6.40	4.10	1.70	0
62	64	11.30	9.00	6.70	4.40	2.10	0
64	66	11.70	9.40	7.10	4.80	2.50	.20
66	68	12.10	9.80	7.40	5.10	2.80	.50
68	70	12.40	10.10	7.80	5.50	3.20	.90
70	72	12.80	10.50	8.20	5.90	3.50	1.20
72	74	13.10	10.80	8.50	6.20	3.90	1.60
74	76	13.50	11.20	8.90	6.60	4.30	2.00
76	78	13.90	11.60	9.20	6.90	4.60	2.30
78	80	14.20	11.90	9.60	7.30	5.00	2.70
80	82	14.60	12.30	10.00	7.70	5.30	3.00
82	84	14.90	12.60	10.30	8.00	5.70	3.40
84	86	15.30	13.00	10.70	8.40	6.10	3.80
86	88	15.70	13.40	11.00	8.70	6.40	4.10
88	90	16.00	13.70	11.40	9.10	6.80	4.50
90	92	16.40	14.10	11.80	9.50	7.10	4.80
92	94	16.70	14.40	12.10	9.80	7.50	5.20
94	96	17.10	14.80	12.50	10.20	7.90	5.60
96	98	17.50	15.20	12.80	10.50	8.20	5.90
98	100	17.80	15.50	13.20	10.90	8.60	6.30
100	105	18.50	16.10	13.80	11.50	9.20	6.90
105	110	19.40	17.00	14.70	12.40	10.10	7.80
110	115	20.30	17.90	15.60	13.30	11.00	8.70
115	120	21.20	18.80	16.50	14.20	11.90	9.60
120	125	22.10	19.70	17.40	15.10	12.80	10.50
125	130	23.00	20.60	18.30	16.00	13.70	11.40
130	135	23.90	21.50	19.20	16.90	14.60	12.30
135	140	24.80	22.40	20.10	17.80	15.50	13.20
140	145	25.70	23.30	21.00	18.70	16.40	14.10
145	150	26.60	24.20	21.90	19.60	17.30	15.00
150	160	27.90	25.60	23.30	21.00	18.70	16.40
160	170	29.70	27.40	25.10	22.80	20.50	18.20
170	180	31.50	29.20	26.90	24.60	22.30	20.00
180	190	33.30	31.00	28.70	26.40	24.10	21.80
190	200	35.10	32.80	30.50	28.20	25.90	23.60
\$200 and over		18 percent of the excess over \$200 plus —					
		36.00	33.70	31.40	29.10	26.80	24.50

Timed Drill

Do Timed Drill Problems (1) to (10) in the usual manner.



PAYROLL SUMMARY

Warm-Up Drill

Complete Warm-Up Drill G, page 72. Compute strokes and record results in the usual manner.

Weekly Payroll Summary

To Complete Problems (1) to (22):

1. Multiply the regular 40 hours (or less) in the week by the Hourly Rate. Write the answer in the Regular Earnings column.
2. Multiply the overtime hours (hours above 40) by $1\frac{1}{2}$ times the Hourly Rate. Record the answer in the Overtime Earnings column.
3. Add Regular Earnings and Overtime Earnings and record the answer as Gross Pay.
4. Using the table on page 134, determine the Income Tax based on Gross Pay and Number of Exemptions.
5. FICA is the abbreviation for Federal Insurance Contributions Act. Employers and employees each contribute equal percentages of the employees' Gross Pay, based on the following table that shows the present tax rates and scheduled increases:

1962	$3\frac{1}{8}\%$
1963-65	$3\frac{5}{8}\%$
1966-67	$4\frac{1}{8}\%$
1968	$4\frac{5}{8}\%$

Choose the current rate, multiply it by the Gross Pay, and record the amount in the FICA column.

6. Deductions for Group Insurance and Savings Bonds are already recorded.
7. Determine Net Earnings by subtracting all deductions from Gross Pay.
8. Total vertically all columns to the right of the Hourly Rate column.
 - a. Total Gross Pay should equal Total Regular Earnings plus Total Overtime Earnings.
 - b. Total Net Earnings should equal Total Gross Pay less combined Totals of all deductions.

(135)

JOB No. 55

PAYROLL SUMMARY

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in _____
Warm-Up Drill _____
Rating _____

WEEKLY PAYROLL SUMMARY											
From <u>March 22, 19--</u>						To <u>March 29, 19--</u>					
EMPL. NO.	NO. OF EX.	WEEKLY HOURS	HOURLY RATE	REGULAR EARNINGS	OVERTIME EARNINGS	GROSS PAY	DEDUCTIONS				NET EARNINGS
							INCOME TAX	FICA	GROUP INSURANCE	SAVINGS BONDS	
1	3	44	2.00	80.00	12.00	92.00	9.80	2.88	1.20	6.25	71.87
2	3	39	2.50						1.20	6.25	
3	4	41	3.75						2.40		
4	2	39	1.875								
5	1	40	1.60							6.25	
6	4	42	2.00								
7	1	39	2.00								
8	3	40	3.00						1.20		
9	2	40	2.50								
10	2	44	2.50						1.20		
11	3	40	2.40							6.25	
12	1	40	1.60								
13	2	38	2.70						1.20		
14	5	35	2.85						2.40		
15	2	40	4.00							6.25	
Totals				(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)

Answers

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(135)

JOB No. 55 (Cont'd.)

EMPLOYEE'S EARNINGS RECORD FOR QUARTER ENDING March 29, 19--

Name Allen, Walter C. Social Security No. 119-16-4234 Employee No. 1

Address 3418 34 Street, Syracuse, New York Tel. No. SW 9-6320

Male ☒ Female ☐ Married ☒ Single ☐ Number Of Exemptions 3 Selective Service Class None

Date Employed May 4, 19-- Job Machinist Full Time ☒ Part Time ☐

PERIOD ENDING	WEEKLY HOURS	OVERTIME HOURS	HOURLY RATE	REGULAR EARNINGS	OVERTIME EARNINGS	GROSS PAY	DEDUCTIONS				NET EARNINGS		
							INCOME TAX	FICA	GROUP INS.	SAVINGS BOND			
<u>Jan. 4</u>	<u>42</u>	<u>2</u>	<u>1.88</u>	<u>75.20</u>	<u>5.84</u>	<u>81.04</u>	<u>7.70</u>	<u>2.53</u>			<u>70.81</u>		
<u>11</u>	<u>44</u>	<u>4</u>	<u>1.88</u>						<u>1.20</u>		(23)		
<u>18</u>	<u>46</u>	<u>6</u>	<u>1.88</u>								(24)		
<u>25</u>	<u>43</u>	<u>3</u>	<u>1.88</u>							<u>6.25</u>	(25)		
<u>Feb. 1</u>	<u>40</u>		<u>1.92</u>								(26)		
<u>8</u>	<u>40</u>		<u>1.92</u>						<u>1.20</u>		(27)		
<u>15</u>	<u>40</u>		<u>1.92</u>								(28)		
<u>22</u>	<u>40</u>		<u>1.92</u>							<u>6.25</u>	(29)		
<u>Mar. 1</u>	<u>44</u>	<u>4</u>	<u>2.00</u>								(30)		
<u>8</u>	<u>45</u>	<u>5</u>	<u>2.00</u>						<u>1.20</u>		(31)		
<u>15</u>	<u>44</u>	<u>4</u>	<u>2.00</u>								(32)		
<u>22</u>	<u>43</u>	<u>3</u>	<u>2.00</u>							<u>6.25</u>	(33)		
<u>29</u>	<u>44</u>	<u>4</u>	<u>2.00</u>								(34)		
QUARTERLY TOTALS						(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)

JOB No. 55 (Cont'd.)

Employee's Earnings Record

An employee's earnings record is kept for each employee. At the end of each quarter of the year, the employer summarizes the earnings of each employee.

In the earnings record at the left, March 29 is the last week of the first quarter. The hours worked have been entered for the previous weeks.

To Complete Problems (23) to (42):

- The hours for the week of March 29 are from the time-clock card on page 132.
- Multiply the regular hours (40 or less) in the week by the Hourly Rate and record the amount in the Regular Earnings column.
- Overtime work is paid at the rate of $1\frac{1}{2}$ times the regular rate. Multiply Overtime Hours by 1.5. Multiply this product by the Hourly Rate and record the answer in the Overtime Earnings column.
- Add Regular Earnings and Overtime Earnings and record answer as Gross Pay.
- Using the table on page 134, determine the Income Tax based on Gross Pay and number of exemptions.
- Multiply the Gross Pay by the applicable FICA rate shown on page 135 and record the amount in FICA column.
- Deductions for Group Insurance and Savings Bonds are already entered.
- Determine Net Earnings by subtracting deductions from Gross Pay.
- Total vertically all columns to the right of the Hourly Rate column.
- Quarterly Totals for Regular Earnings plus Overtime Earnings should equal Gross Pay.
- Quarterly Totals for all deductions plus Net Earnings should equal Gross Pay.

Monthly Payroll Summary

A monthly payroll summary is compiled to assist in analyzing the payroll and to prepare various business reports.

To Complete Problems (43) to (64):

1. For each Wage Group:
 - a. Add Regular and Overtime Earnings to determine Total Earnings.
 - b. Multiply Total Earnings by the applicable FICA rate shown on page 135 and record the answer in the FICA Tax column.
 - c. Subtract the total deductions from Total Earnings and record the amount in Net Earnings column.
2. Add each column vertically and record the sums as Totals.
3. To prove the calculations:
 - a. Total Regular Earnings plus Total Overtime Earnings should equal Total Earnings.
 - b. Total Deductions plus Net Earnings should equal Total Earnings.

PRECISION INSTRUMENTS, INC.									
MONTHLY PAYROLL SUMMARY					March, 19--				
NO. OF WORKERS	WAGE GROUP	EARNINGS			DEDUCTIONS				NET EARNINGS
		REGULAR	OVERTIME	TOTAL	INCOME TAX	FICA TAX	GROUP INSURANCE	SAVINGS BONDS	
									(43)
1	Assistant Supervisor	525.00			98.31		3.78		(44)
3	Chief Operators	935.00	229.76		209.37			18.75	(45)
3	Custodians	615.00			101.30		6.70		(46)
3	Drivers	870.00	92.99		150.05		10.05	18.75	(47)
1	Electrician	410.00	22.83		72.16			6.25	(48)
1	General Manager	925.00			97.28		3.78	37.50	(49)
3	Machinists	1,275.00	312.21		203.79		6.70	12.50	(50)
1	Office Manager	610.00			76.41		3.78	6.25	(51)
24	Operators	8,520.00	1,031.42		1,477.52		53.60	112.50	(52)
2	Packing Clerks	410.00	27.48		69.29			18.75	(53)
2	Painters	800.00			120.44		6.70		(54)
2	Shipping Clerks	450.00	87.91		61.29				(55)
1	Supervisor	600.00			115.25		3.78	6.25	(56)
3	Typists	675.00			110.38		6.70	12.50	(64)
		(57)	(58)	(59)	(60)	(61)	(62)	(63)	
	TOTALS								

Answers

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64	

JOB No. 55 (Cont'd.)

Timed Drill

WEEKLY PAYROLL SUMMARY											
FROM <u>April 15, 19--</u>						TO <u>April 22, 19--</u>					
EMPL. NO.	NO. OF EX.	WEEKLY HOURS	HOURLY RATE	REGULAR EARNINGS	OVERTIME EARNINGS	GROSS PAY.	DEDUCTIONS				NET EARNINGS
							INCOME TAX	FICA	GROUP INSURANCE	SAVINGS BOND	
1	2	42	2.25						1.20	6.25	(1)
2	1	40	2.50								(2)
3	4	40	2.10						2.40		(3)
4	3	38	3.00								(4)
5	2	44	1.75								(5)
6	1	40	2.875							6.25	(6)
7	1	40	2.70								(7)
8	2	43	2.15						1.20		(8)
9	2	37	3.00							6.25	(9)
10	3	42	4.00						1.20		(10)
11	4	41	2.60						2.40		(11)
12	2	40	2.85								(12)
13	2	37	3.00							6.25	(13)
14	4	40	2.50						1.20		(14)
15	3	40	2.65						1.20		(15)
TOTALS				(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)

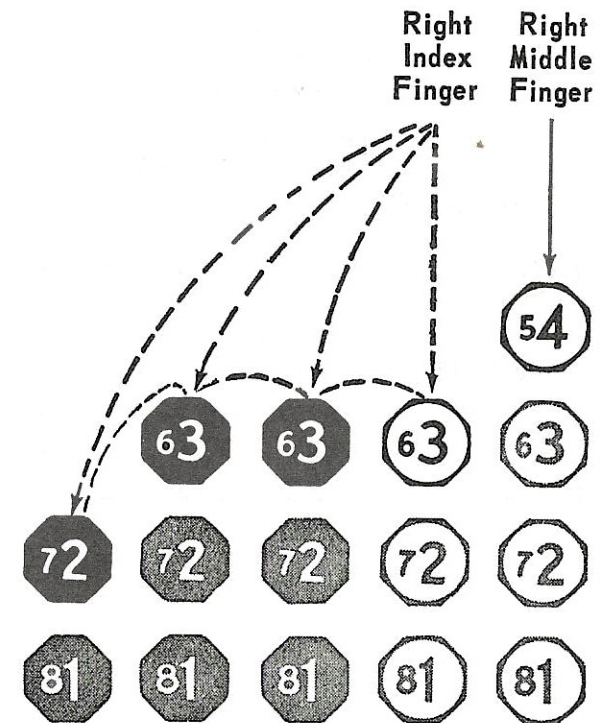
JOB No. 55 (Cont'd.)

Timed Drill

Do Timed Drill Problems (1) to (23) in the usual manner.

Timed Drill

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23



56

TOUCH ADDITION

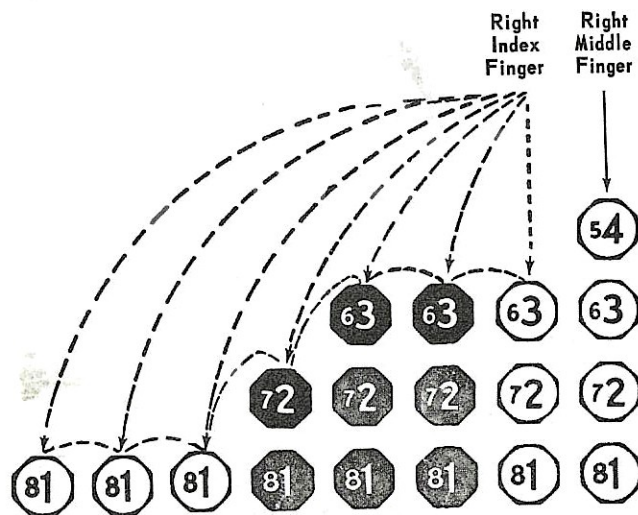
Eight-Digit Numbers

Warm-Up Drill

Complete Warm-Up Drill H, page 86. Compute strokes and record results in the usual manner.

Touch Addition Eight-Digit Numbers

1. Begin at the left of the number.
2. Strike keys for the first seven digits with the right index finger.
3. Strike the units digit with the right middle finger.
4. Strive for an even, rhythmic action.



JOB No. 56
TOUCH ADDITION

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

To Complete Problem (1):

1. Strike 100,000.00, 10,000.00, 1,000.00, 200.00, 30.00, 3.00, and .30 with the right index finger.
2. Strike 4 with the right middle finger.
3. Before proceeding with Problem 1, strike 111,233.34 until an even, rhythmic action is achieved.

(1)	(2)	(3)	(4)
111,233.34	11,856.23	613,687.04	386,228.66
264.16	615,082.24	21,604.18	.41
5,211.68	237.62	2,261.82	1,862.70
325,429.84	41,709.73	878.52	1.70
22,333.29	234.80	9,535.52	.23
3,745.05	8,447.10	339.36	931,953.35
.83	643.85	366,347.88	892,402.67
.52	9,434.42	194.63	429.57
200,521.01	946,903.42	514.99	384.35
18,464.71	.76	179,204.43	63,273.07

Answers

1	
2	
3	
4	
5	
6	
7	
8	

(5)	(6)	(7)	(8)
385,128.87	394.25	7,496.48	539,028.90
9,715.99	.10	430,046.51	397.85
194.67	990,457.00	222.99	774,778.94
893,156.28	481.85	2.43	363.83
3,174.66	513,551.39	.61	6,641.45
261.30	100,759.39	56,759.85	5.28
464,607.69	794.40	495,783.41	2.54
211.28	1.75	41,328.27	74.34
5,351.87	349.49	207.15	314,651.34
635,379.10	30,073.54	68,759.18	554.94

JOB No. 56 (Cont'd.)

(9)	(10)	(11)	(12)	Answers
771.33	626.65	71,144.54	949,585.87	9
494,836.75	70,012.25	485.79	2,318.15	10
83,484.23	262.94	125,824.52	631,809.55	11
962.45	904,618.69	659.02	.98	12
152,472.64	865.71	194,821.55	6.90	
66.66	139,202.55	634.54	688.56	
4.83	.95	12.27	.25	
6.99	6.73	133,433.94	796,086.81	
63,826.43	.67	.89	9,724.46	
227,135.96	634,252.19	.66	688,080.73	

Timed Drill

(1)	(2)	(3)	(4)	Timed Drill
378,897.72	917.40	100,414.29	815.53	1
1,569.06	248,633.56	7,433.50	876,371.88	2
773.34	.28	144,523.08	55.22	3
454.19	3,059.94	711.19	18,934.11	4
3,063.61	279.13	571.91	.34	
147.64	42,135.76	2,974.07	3.56	
67,218.31	255.92	747.38	214,452.58	
248,034.55	154,033.39	3,125.40	724.24	
534.21	125.41	162,037.12	24,442.31	
6,755.00	516,274.00	34,041.02	854,389.79	

JOB No. 56 (Cont'd.)

To Improve Your Work

Accuracy and speed will be increased by strict adherence to the following suggestions:

1. In addition problems, strike the keys separately for digits in each number.
2. Use a rhythmic, bounce touch.
3. Do not pause between strokes.
4. Depress each key fully before releasing it.
5. Keep your eyes on the written numbers. Do not look at the keyboard of the calculator.
6. Do not use a guide. Train your eyes to travel down the column of numbers unaided.
7. Record answers rapidly.
 - a. Look at the answer in the dials and keep it in mind.
 - b. Write the answer in the proper space.

Timed Drill

Do Timed Drill Problems (1) to (4) in the usual manner.

57

SPEED DRILL Six-, Seven-, and Eight-Column Addition

This drill contains 12 problems of 75 strokes each, a total of 900 strokes. In completing this drill you should strive constantly to improve both speed and accuracy.

1. Complete each problem once, writing the answer in the space directly below the problem.
2. Complete the drill again, this time keeping a close check on the time in minutes and seconds.
 - a. If the second answer is the same as the first, place a check mark (✓) beside the first answer.
 - b. If the second answer is not the same as the first, write the second answer directly below the first answer.
3. Record in the Time Record at the right the time that was required to complete the drill.
4. Complete the drill again and again during the time allotted by your instructor. Record the number of minutes and seconds required each time, trying constantly to increase your speed.
5. When you have spent the allotted time on the drill, draw a circle around your fastest time in the Time Record form.

JOB No. 57
SPEED DRILL

Name _____
Period _____ Date _____

No. of Errors _____
Rating _____

(1)	(2)	(3)	(4)
374.83	78.55	900.11	1.02
647,395.87	.02	762.89	492.27
16.92	9.01	326,484.78	.09
5.16	768.62	.99	.98
9.13	.57	4.78	86,274.95
76.80	572,126.95	.57	69.26
9,733.54	4.11	2,244.87	.46
567.68	412,648.72	1.00	120,321.27
.69	1,956.70	647,939.62	7.38
.04	5.74	8,385.28	5.78
62,112.79	96,387.32	6.54	959,679.83
5.43	67.02	.36	497.54
_____	_____	_____	_____
_____	_____	_____	_____
(5)	(6)	(7)	(8)
.19	72.88	.70	217.22
90.29	6,312.68	64,835.97	.93
763.36	.62	6,479.08	322.88
1,346.07	73.28	.97	6.38
9.26	5.46	87,201.26	395,720.13
849,832.21	886,212.79	90.36	172.48
7.65	3.80	309.68	.38
4.19	943,962.37	284,573.26	62,721.02
46.70	4.79	.01	882.55
.45	8.16	.65	829.69
6,172.63	26.82	3,463.15	.93
83,627.95	.07	9.89	3,578.42
_____	_____	_____	_____
_____	_____	_____	_____

Time Record		
No.	Time	
	Min.	Sec.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Answers	
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JOB No. 57 (Cont'd.)

(9)	(10)	(11)	(12)	Answers
.94	7.64	2.92	9.51	9
280.68	6,546.64	94,057.62	8.19	10
.10	.34	1.23	5.88	11
4.49	547,326.75	1,242.55	27,649.83	12
347,206.73	390.77	572,784.93	996.94	
8.92	.13	527.76	9,934.24	
694.89	65.84	54.71	203.50	
185.08	515.36	862,709.88	.25	
62,787.34	72,709.65	.57	749,683.02	
6,795.48	868.40	.39	5.79	
.25	.89	2.50	43.94	
99.83	96.52	423.77	127.49	



Correct Position at Calculator

Three-Minute Checkup

- Before proceeding with the Three-Minute Checkup, erase the answers for all problems of the Speed Drill.
- To complete the Three-Minute Checkup:
 - Do as many problems in the Speed Drill as possible in three minutes.
 - Record each answer in the space provided at the edge of the page.
 - At the end of the allotted time use the form at the bottom of this page to calculate the results of the checkup.
 - Record results on the Speed Drill Record, page 152.
- Give the completed job to the instructor.

THREE-MINUTE CHECKUP RESULTS

Number of problems completed.....	Number of wrong answers.....
Gross strokes..... (Multiply 75 by number of problems completed)	Number of correct answers.....
Minutes..... 3	Net strokes..... (Multiply 75 by number of correct answers)
Gross strokes a minute..... (Divide gross strokes by 3)	Net strokes a minute..... (Divide net strokes by 3)

Warm-Up Drill

Complete Warm-Up Drill I, page 95. Compute strokes and record results in the usual manner.

Devising Tables of Numbers

In most instances arithmetic calculations are performed faster and more accurately on a machine than by pencil and paper. However, arithmetic calculations can usually be determined faster and more accurately by using tables of numbers than calculating machines. For example, see Job 39 where chain discounts were computed with and without a table.

Calculating-machine manufacturers provide businesses with tables already prepared. However, if tables are not already available and the same arithmetic calculations are repeated very frequently, time and effort can probably be saved by devising a table. For example, if it is necessary to calculate earnings for student assistants each week, these calculations can be made by constructing a table instead of repeating the same calculations each week.

JOB No. 58
DEVISING TABLES
OF NUMBERS

Name _____

Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

To Complete Problem (1):

Multiply each Rate Per Hour by the Hours and record the amount in the proper space. Many of these calculations may be performed mentally.

(1)

STUDENT'S WEEKLY EARNINGS TABLE										
Hours Rate per Hour	5	6	8	10	12	14	15	16	18	20
.50	2.50									
.65										
.75										
.85										
.90										
1.00										
1.10										
1.25										
1.50										
2.00										

JOB No. 58 (Cont'd.)

To Complete Problem (2):

1. Add 1 into the machine.
2. Multiply **small** 20 by 1. The dials read 80.
3. Hold **small** 10 in the third and second columns from the right so that the 0 of 10 is over the 8 of 80 that appears in the dials. Multiply by 8.
4. Hold **small** 15 in the fifth and fourth dials from the right so that the 5 of 15 is over the 7 of 7200 that appears in the dials.
 - a. Multiply by 7.
 - b. Move to the right and multiply by 2.
5. Move the decimal point six places to the left. The product is .612000.
6. Repeat Steps 1-5 to find the decimal equivalents for the remaining chain discounts.

(2)

Table of Chain Discount Net Equivalents					
%	20	25	30	40	50
10-15	.612				
10-20					
12 1/2					
15					
15-5					
20					

Timed Drill

Table of Chain Discount Net Equivalents					
%	15	20	25	30	40
12 1/2	(1)	(2)	(3)	(4)	(5)
12 1/2-5	(6)	(7)	(8)	(9)	(10)
15-2 1/2	(11)	(12)	(13)	(14)	(15)
20-2 1/2	(16)	(17)	(18)	(19)	(20)
20-5	(21)	(22)	(23)	(24)	(25)

Timed Drill

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JOB No. 58 (Cont'd.)

If a company constantly offers chain discounts that are not found in conventional tables of chain discounts (See Job 39 and Table of Chain Discount Net Equivalents, page 151), it will probably be advantageous to construct a table.

To find the decimal equivalent of a chain discount:

1. Add 1 into the machine.
2. Using **small** numbers for the first percentage of the chain, multiply by the compound multiplication method. (See Job 29, **but do not use less one.**) Multiply by 1 which is in the dials.
3. Using **small** numbers for each subsequent percentage of the chain, multiply by the compound multiplication method, **but do not use less one.**
4. Move the decimal point to the left for the total number of decimal places in all the percentages.

NOTE: When multiplying by 2%, remember to hold **small .02**.

Timed Drill

Do Timed Drill Problems (1) to (25) in the usual manner.

Warm-Up Drill

Complete Warm-Up Drill J, page 102. Compute strokes and record results in the usual manner.

Account Sales Report

Producers sometimes market merchandise such as cotton, livestock, groceries, and grain through commission merchants. Commission merchants receive goods on consignment, which means they have no legal title to the goods but have authority to sell them.

When the merchandise is sold, the commission merchant receives a **commission**, which is a per cent of the Gross Sales. The commission merchant also charges the producer for expenses that he may have incurred in handling and selling the merchandise. Some of these expenses are transportation, sorting, packaging, and storage of the goods.

An Account Sales Report is sent from the commission merchant to the producer itemizing the transactions.

To Complete Problems (1) to (20):

1. Multiply Quantity by Price and record the product as Gross Sales.
2. Multiply the Gross Sales by the Commission Rate and record the answer as Commission Amount.
3. Add Commission Amount to the Transportation, Packaging, and Storage Charges and record the answer as Total Charges.
4. Subtract Total Charges from Gross Sales and record the difference as Net Proceeds.
5. Add columns for Gross Sales; Commission Amount; Transportation, Packaging, and Storage; Total Charges; and Net Proceeds.
6. a. The Commission Amount plus Transportation, Packaging, and Storage columns should equal the Total Charges column.
b. The Total Charges plus Net Proceeds columns should equal the Gross Sales column.

JOB No. 59
COMMISSIONS

Name _____
Period _____ Date _____

No. of Errors _____
Strokes in
Warm-Up Drill _____
Rating _____

ACCOUNT SALES REPORT

Product No.	Sales			Charges			Net Proceeds
	Quantity	Price	Gross Sales	Commission		Transportation, Packaging, Storage	Total
				Rate %	Amount		
1	4,274 lb.	.45 lb.		3		69.90	
2	240 doz.	.36 doz.		2		34.87	
3	845 lb.	.42 lb.		2½		28.10	
4	6,925 bu.	.71 bu.		2		81.77	
5	654 lb.	.53 lb.		3½		62.90	
6	2,072 lb.	.54 lb.		2½		93.52	
7	906 doz.	.42 doz.		2½		87.20	
8	160 lb.	.58 lb.		2½		66.53	
9	348 doz.	.38 doz.		2		50.54	
10	2,608 bu.	.72 bu.		2		92.40	
11	863 lb.	.59 lb.		3		20.64	
12	687 lb.	.23 lb.		3½		50.41	
13	8,243 lb.	.29 lb.		3		190.96	
14	542 doz.	.38 doz.		3½		77.49	
15	2,269 doz.	.34 doz.		2		89.30	

Answers

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16 17 18 19 20

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DAILY COMMISSION REPORT						
Month of <u>September, 19--</u>		Name <u>B. L. Allen</u>		Time Clock No. <u>171</u>		
Date	Gross Sales			Returns		
	Dept. A	Dept. B	Dept. C	Dept. A	Dept. B	Dept. C
1	178.76					
2	488.39			23.84		
3						
4	268.60					
5	116.25					
6	45.91					
7	302.56					
8	462.80			59.63		
9	965.92					
10						
11			61.33			
12			198.42			
13			44.69			10.13
14			612.82			
15			314.11			
16			426.39			39.51
17						
18		97.19	37.53	52.39		127.84
19		41.31	68.96			40.54
20		59.63	294.87			
21			435.72			
22			489.38			
23	70.89		866.16		3.49	
24						
25	59.13		94.51		10.38	36.63
26	68.48		131.52			
27			402.84			
28			391.71			260.40
29			701.54			24.29
30		391.10	231.30			
31						
Totals	(21)	(22)	(23)	(24)	(25)	(26)

Daily Commission Report

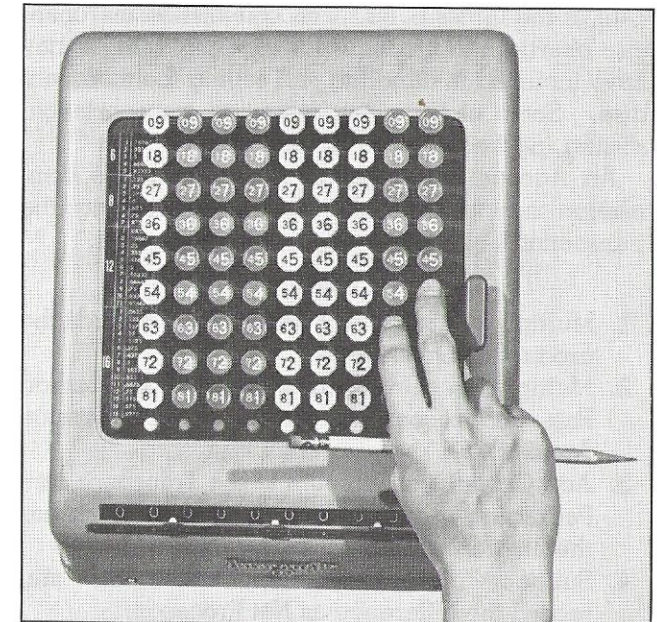
Salespersons in department stores sometimes receive commissions on their sales. The commissions may vary for the merchandise sold in different departments, so Gross Sales and Returns for each department are listed separately.

To Complete Problems (21) to (26):

1. Add the Gross Sales for Departments A, B, and C.
2. Add the Returns for Departments A, B, and C.

Answers

21
22
23
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Position of Fingers to Strike 34

When adding, strike each key individually.

JOB No. 59 (Cont'd.)

Monthly Commission Report

At the end of the month, the salesperson's salary is calculated on the Monthly Commission Report. Information for this report is taken from the Daily Commission Report. Commissions are determined for each of the departments. A salesperson may have drawn money during the month against his anticipated earnings. There may also have been a deficit from the previous month.

To Complete Problems (27) to (31):

1. Refer to the Daily Commission Report on the previous page and record the Gross Sales and Returns for departments A, B, and C on the Monthly Commission Report.
2. Subtract Returns from Gross Sales and record the differences as Net Sales.
3. Multiply the Net Sales for each department by the Commission Rate earned in that department. Record the answer in the Commission column.
4. Add the Commission column to find the Total Commission.
5. Subtract the amount of the Drawing for the month and the Deficit from the previous month and record the Net Commission.

Field Salesman's Commission Report

On the Field Salesman's Commission Report, daily sales for one week are recorded for salesmen who work in the field.

To Complete Problems (32) to (42):

1. Add each brush type across and down, and prove by cross balancing.
2. Find the Commission, using the per cent indicated at the top of the merchandise classification column.

(Continued on next page)

JOB No. 59 (Cont'd.)

Name _____

MONTHLY COMMISSION REPORT					
Month of <u>September, 19--</u>		Name <u>B. L. Allen</u>		Time Clock No. <u>171</u>	
Dept.	Gross Sales	Returns	Net Sales	Commission Rate	Commission
A				$4\frac{1}{2}$	(27)
B				5	(28)
C				7	(29)
Total				Total	(30)
				Drawing	100.00
				Deficit	37.00
				Net	(31)

FIELD SALESMAN'S COMMISSION REPORT						
Salesman <u>Ken Vance</u>			Period <u>May 8-13, 19--</u>			
Date	7% Commission Brushes		Total	6½% Commission Brushes		Total
	Type			Type		
	E	F		X	Y	
8	84.24			92.26		
9	70.53	214.57		74.28	75.77	
10		30.62		112.97		
11	409.74	89.99		449.85	138.97	
12	81.79	37.62		14.61	30.10	
13	169.84			63.89		
Totals	(32)	(33)	(34)	(35)	(36)	(37)
Commission			(38)	Commission		(39)
Total commission this week			(40)	Total commission to date this year		2,462.33
Total commission same week last year			121.60	Total commission to date last year		2,131.72
+ or - from same week last year			(41)	+ or - from total commission to date last year		(42)

Answers

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JOB No. 59 (Cont'd.)

Timed Drill

FIELD SALESMAN'S COMMISSION REPORT						
Salesman <u>Ben Maxwell</u>				Period <u>May 8-13, 19--</u>		
Date	7% Commission Brushes		Total	6½% Commission Brushes		Total
	Type			Type		
	E	F		X	Y	
8	430.15	89.07		237.33	114.50	
9	25.64			620.28		
10	51.81	71.77		88.14	415.40	
11	199.59	188.30		99.43	45.66	
12	13.68	96.81		171.97	45.82	
13	295.83			290.40	51.18	
Totals	(1)	(2)	(3)	(4)	(5)	(6)
Commission			(7)	Commission		(8)
Total commission this week			(9)	Total commission to date this year		4,940.23
Total commission same week last year			220.38	Total commission to date last year		3,831.62
+ or - from same week last year			(10) %	+ or - from total commission to date last year		(11) %

MONTHLY COMMISSION REPORT					
Month <u>June, 19--</u>				Name <u>Edward C. Harris</u>	
Dept.	Gross Sales	Returns	Net Sales	Commission Rate	Commission
A	2,681.24	279.51		6½	(12)
B	5,314.46	538.74		2½	(13)
C	619.17	13.62		7	(14)
TOTAL				TOTAL	(15)
				Drawing	75.00
				Deficit	
				Net	(16)

JOB No. 59 (Cont'd.)

3. Add the two commissions to get the total commission for the week. Record the answer on the proper line at the bottom of the report.

4. Find the per cent of increase or decrease for commissions:

a. From the same week last year.

b. From total commissions to date last year.
(If necessary, see Job 35.)

Timed Drill

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Timed Drill

Do Timed Drill Problems (1) to (16) in the usual manner.

NOTE: Ask your instructor about Job No. 60, which is Test No. 6.

DECIMAL RECIPROCAL

The reciprocals in this table were determined by dividing each number into 1.0. To find the reciprocal of a decimal, find the reciprocal as if the decimal were a whole number, and then move the decimal point in the reciprocal as many places to the right as there are places in the decimal for which the reciprocal is desired. For example, the reciprocal of .04 is 25; that for .125 is 8; that for 7.25 is .138.

1	1.00000	41	.02439	101	.00990	161	.00621	221	.00452	281	.00356	341	.00293	401	.00249	461	.00217
2	.50000	42	.02381	102	.00980	162	.00617	222	.00450	282	.00355	342	.00292	402	.00249	462	.00216
3	.33333	43	.02326	103	.00971	163	.00613	223	.00448	283	.00353	343	.00292	403	.00248	463	.00216
4	.25000	44	.02273	104	.00962	164	.00610	224	.00446	284	.00352	344	.00291	404	.00248	464	.00216
5	.20000	45	.02222	105	.00952	165	.00606	225	.00444	285	.00351	345	.00290	405	.00247	465	.00215
6	.16667	46	.02174	106	.00943	166	.00602	226	.00442	286	.00350	346	.00289	406	.00246	466	.00215
7	.14286	47	.02128	107	.00935	167	.00599	227	.00441	287	.00348	347	.00288	407	.00246	467	.00214
8	.12500	48	.02083	108	.00926	168	.00595	228	.00439	288	.00347	348	.00287	408	.00245	468	.00214
9	.11111	49	.02041	109	.00917	169	.00592	229	.00437	289	.00346	349	.00287	409	.00244	469	.00213
10	.10000	50	.02000	110	.00909	170	.00588	230	.00435	290	.00345	350	.00286	410	.00244	470	.00213
11	.09091	51	.01961	111	.00901	171	.00585	231	.00433	291	.00344	351	.00285	411	.00243	471	.00212
12	.08333	52	.01923	112	.00893	172	.00581	232	.00431	292	.00342	352	.00284	412	.00243	472	.00212
13	.07692	53	.01887	113	.00885	173	.00578	233	.00429	293	.00341	353	.00283	413	.00242	473	.00211
14	.07143	54	.01852	114	.00877	174	.00575	234	.00427	294	.00340	354	.00282	414	.00242	474	.00211
15	.06667	55	.01818	115	.00870	175	.00571	235	.00426	295	.00339	355	.00282	415	.00241	475	.00211
16	.06250	56	.01786	116	.00862	176	.00568	236	.00424	296	.00338	356	.00281	416	.00240	476	.00210
17	.05882	57	.01754	117	.00855	177	.00565	237	.00422	297	.00337	357	.00280	417	.00240	477	.00210
18	.05556	58	.01724	118	.00847	178	.00562	238	.00420	298	.00336	358	.00279	418	.00239	478	.00210
19	.05263	59	.01695	119	.00840	179	.00559	239	.00418	299	.00334	359	.00279	419	.00239	479	.00209
20	.05000	60	.01667	120	.00833	180	.00556	240	.00417	300	.00333	360	.00278	420	.00238	480	.00208
21	.04762	61	.01639	121	.00826	181	.00552	241	.00415	301	.00332	361	.00277	421	.00238	481	.00208
22	.04545	62	.01613	122	.00820	182	.00549	242	.00413	302	.00331	362	.00276	422	.00237	482	.00207
23	.04348	63	.01587	123	.00813	183	.00546	243	.00411	303	.00330	363	.00275	423	.00236	483	.00207
24	.04167	64	.01563	124	.00806	184	.00543	244	.00410	304	.00329	364	.00275	424	.00236	484	.00207
25	.04000	65	.01538	125	.00800	185	.00541	245	.00408	305	.00328	365	.00274	425	.00235	485	.00206
26	.03846	66	.01515	126	.00794	186	.00538	246	.00407	306	.00327	366	.00273	426	.00235	486	.00206
27	.03704	67	.01493	127	.00787	187	.00535	247	.00405	307	.00326	367	.00272	427	.00234	487	.00205
28	.03571	68	.01471	128	.00781	188	.00532	248	.00403	308	.00325	368	.00272	428	.00234	488	.00205
29	.03448	69	.01449	129	.00775	189	.00529	249	.00402	309	.00324	369	.00271	429	.00233	489	.00204
30	.03333	70	.01429	130	.00769	190	.00526	250	.00400	310	.00323	370	.00270	430	.00233	490	.00204
31	.03226	71	.01408	131	.00763	191	.00524	251	.00398	311	.00322	371	.00270	431	.00232	491	.00204
32	.03125	72	.01389	132	.00758	192	.00521	252	.00397	312	.00321	372	.00269	432	.00231	492	.00203
33	.03030	73	.01370	133	.00752	193	.00518	253	.00395	313	.00319	373	.00268	433	.00231	493	.00203
34	.02941	74	.01351	134	.00746	194	.00515	254	.00394	314	.00318	374	.00267	434	.00230	494	.00202
35	.02857	75	.01333	135	.00741	195	.00513	255	.00392	315	.00317	375	.00267	435	.00230	495	.00202
36	.02778	76	.01316	136	.00735	196	.00510	256	.00391	316	.00316	376	.00266	436	.00229	496	.00202
37	.02703	77	.01299	137	.00730	197	.00508	257	.00389	317	.00315	377	.00265	437	.00229	497	.00201
38	.02632	78	.01282	138	.00725	198	.00505	258	.00388	318	.00314	378	.00265	438	.00228	498	.00201
39	.02564	79	.01266	139	.00719	199	.00503	259	.00386	319	.00313	379	.00264	439	.00228	499	.00200
40	.02500	80	.01250	140	.00714	200	.00500	260	.00385	320	.00313	380	.00263	440	.00227	500	.00200

(continued)

DECIMAL RECIPROCAL (continued)

501	.00200	561	.00178	621	.00161	681	.00147	741	.00135	801	.00125	861	.00116	921	.00109	981	.00102
502	.00199	562	.00178	622	.00161	682	.00147	742	.00135	802	.00125	862	.00116	922	.00108	982	.00102
503	.00199	563	.00178	623	.00161	683	.00146	743	.00135	803	.00125	863	.00116	923	.00108	983	.00102
504	.00198	564	.00177	624	.00160	684	.00146	744	.00134	804	.00124	864	.00116	924	.00108	984	.00102
505	.00198	565	.00177	625	.00160	685	.00146	745	.00134	805	.00124	865	.00116	925	.00108	985	.00102
506	.00198	566	.00177	626	.00160	686	.00146	746	.00134	806	.00124	866	.00115	926	.00108	986	.00101
507	.00197	567	.00176	627	.00160	687	.00146	747	.00134	807	.00124	867	.00115	927	.00108	987	.00101
508	.00197	568	.00176	628	.00159	688	.00145	748	.00134	808	.00124	868	.00115	928	.00108	988	.00101
509	.00196	569	.00176	629	.00159	689	.00145	749	.00134	809	.00124	869	.00115	929	.00108	989	.00101
510	.00196	570	.00175	630	.00159	690	.00145	750	.00133	810	.00123	870	.00115	930	.00108	990	.00101
511	.00196	571	.00175	631	.00158	691	.00145	751	.00133	811	.00123	871	.00115	931	.00107	991	.00101
512	.00195	572	.00175	632	.00158	692	.00145	752	.00133	812	.00123	872	.00115	932	.00107	992	.00101
513	.00195	573	.00175	633	.00158	693	.00144	753	.00133	813	.00123	873	.00115	933	.00107	993	.00101
514	.00195	574	.00174	634	.00158	694	.00144	754	.00133	814	.00123	874	.00114	934	.00107	994	.00101
515	.00194	575	.00174	635	.00157	695	.00144	755	.00132	815	.00123	875	.00114	935	.00107	995	.00101
516	.00194	576	.00174	636	.00157	696	.00144	756	.00132	816	.00123	876	.00114	936	.00107	996	.00100
517	.00193	577	.00173	637	.00157	697	.00143	757	.00132	817	.00122	877	.00114	937	.00107	997	.00100
518	.00193	578	.00173	638	.00157	698	.00143	758	.00132	818	.00122	878	.00114	938	.00107	998	.00100
519	.00193	579	.00173	639	.00156	699	.00143	759	.00132	819	.00122	879	.00114	939	.00106	999	.00100
520	.00192	580	.00172	640	.00156	700	.00143	760	.00132	820	.00122	880	.00114	940	.00106	1000	.00100
521	.00192	581	.00172	641	.00156	701	.00143	761	.00131	821	.00122	881	.00114	941	.00106		
522	.00192	582	.00172	642	.00156	702	.00142	762	.00131	822	.00122	882	.00113	942	.00106		
523	.00191	583	.00172	643	.00156	703	.00142	763	.00131	823	.00122	883	.00113	943	.00106		
524	.00191	584	.00171	644	.00155	704	.00142	764	.00131	824	.00121	884	.00113	944	.00106		
525	.00190	585	.00171	645	.00155	705	.00142	765	.00131	825	.00121	885	.00113	945	.00106		
526	.00190	586	.00171	646	.00155	706	.00142	766	.00131	826	.00121	886	.00113	946	.00106		
527	.00190	587	.00170	647	.00155	707	.00141	767	.00130	827	.00121	887	.00113	947	.00106		
528	.00189	588	.00170	648	.00154	708	.00141	768	.00130	828	.00121	888	.00113	948	.00105		
529	.00189	589	.00170	649	.00154	709	.00141	769	.00130	829	.00121	889	.00112	949	.00105		
530	.00189	590	.00169	650	.00154	710	.00141	770	.00130	830	.00120	890	.00112	950	.00105		
531	.00188	591	.00169	651	.00154	711	.00141	771	.00130	831	.00120	891	.00112	951	.00105		
532	.00188	592	.00169	652	.00153	712	.00140	772	.00130	832	.00120	892	.00112	952	.00105		
533	.00188	593	.00169	653	.00153	713	.00140	773	.00129	833	.00120	893	.00112	953	.00105		
534	.00187	594	.00168	654	.00153	714	.00140	774	.00129	834	.00120	894	.00112	954	.00105		
535	.00187	595	.00168	655	.00153	715	.00140	775	.00129	835	.00120	895	.00112	955	.00105		
536	.00187	596	.00168	656	.00152	716	.00140	776	.00129	836	.00120	896	.00112	956	.00105		
537	.00186	597	.00168	657	.00152	717	.00139	777	.00129	837	.00119	897	.00111	957	.00104		
538	.00186	598	.00167	658	.00152	718	.00139	778	.00129	838	.00119	898	.00111	958	.00104		
539	.00186	599	.00167	659	.00152	719	.00139	779	.00128	839	.00119	899	.00111	959	.00104		
540	.00185	600	.00167	660	.00152	720	.00139	780	.00128	840	.00119	900	.00111	960	.00104		
541	.00185	601	.00166	661	.00151	721	.00139	781	.00128	841	.00119	901	.00111	961	.00104		
542	.00185	602	.00166	662	.00151	722	.00139	782	.00128	842	.00119	902	.00111	962	.00104		
543	.00184	603	.00166	663	.00151	723	.00138	783	.00128	843	.00119	903	.00111	963	.00104		
544	.00184	604	.00166	664	.00151	724	.00138	784	.00128	844	.00118	904	.00111	964	.00104		
545	.00183	605	.00165	665	.00150	725	.00138	785	.00127	845	.00118	905	.00110	965	.00104		
546	.00183	606	.00165	666	.00150	726	.00138	786	.00127	846	.00118	906	.00110	966	.00104		
547	.00183	607	.00165	667	.00150	727	.00138	787	.00127	847	.00118	907	.00110	967	.00103		
548	.00182	608	.00164	668	.00150	728	.00137	788	.00127	848	.00118	908	.00110	968	.00103		
549	.00182	609	.00164	669	.00149	729	.00137	789	.00127	849	.00118	909	.00110	969	.00103		
550	.00182	610	.00164	670	.00149	730	.00137	790	.00127	850	.00118	910	.00110	970	.00103		
551	.00181	611	.00164	671	.00149	731	.00137	791	.00126	851	.00118	911	.00110	971	.00103		
552	.00181	612	.00163	672	.00149	732	.00137	792	.00126	852	.00117	912	.00110	972	.00103		
553	.00181	613	.00163	673	.00149	733	.00136	793	.00126	853	.00117	913	.00110	973	.00103		
554	.00181	614	.00163	674	.00148	734	.00136	794	.00126	854	.00117	914	.00109	974	.00103		
555	.00180	615	.00163	675	.00148	735	.00136	795	.00126	855	.00117	915	.00109	975	.00103		
556	.00180	616	.00162	676	.00148	736	.00136	796	.00126	856	.00117	916	.00109	976	.00102		
557	.00180	617	.00162	677	.00148	737	.00136	797	.00125	857	.00117	917	.00109	977	.00102		
558	.00179	618	.00162	678	.00147	738	.00136	798	.00125	858	.00117	918	.00109	978	.00102		
559	.00179	619	.00162	679	.00147	739	.00135	799	.00125	859	.00116	919	.00109	979	.00102		
560	.00179	620	.00161	680	.00147	740	.00135	800	.00125	860	.00116	920	.00109	980	.00102		

To complete a problem using the Chain Discount Net Equivalents table:

Example: \$43.25 less 15%-10%-5%

1. Locate the column headed 15%.
2. Glance down the column to the equivalent opposite 10-5 in the extreme left column. The net decimal equivalent is .72675.
3. Multiply .72675 by \$43.25. The net amount is \$31.43.

CHAIN DISCOUNT NET EQUIVALENTS

Rate %	5	7½	10	12½	15	16½	20	25	30	33½	35	37½
Net	.95	.925	.90	.875	.85	.83333	.80	.75	.70	.66667	.65	.625
2½	.92625	.90188	.8775	.85313	.82875	.8125	.78	.73125	.6825	.65	.63375	.60938
5	.9025	.87875	.855	.83125	.8075	.79166	.76	.7125	.665	.63333	.6175	.59375
5 2½	.87994	.85678	.83363	.81047	.78731	.77187	.741	.69469	.64838	.6175	.60206	.57891
5 5	.85738	.83481	.81225	.78969	.76713	.75208	.722	.67688	.63175	.60167	.58663	.56406
5 5 2½	.83594	.81394	.79194	.76995	.74795	.73328	.70395	.65995	.61596	.58663	.57196	.54996
7½	.87875	.85563	.8325	.80938	.78625	.77083	.74	.69375	.6475	.61667	.60125	.57813
7½ 2½	.85678	.83423	.81169	.78914	.76659	.75156	.7215	.67641	.63131	.60125	.58622	.56367
7½ 5	.83481	.81284	.79088	.76891	.74694	.73229	.703	.65906	.61513	.58583	.57119	.54922
10	.855	.8325	.81	.7875	.765	.75	.72	.675	.63	.6	.585	.5625
10 2½	.83363	.81169	.78975	.76781	.74588	.73125	.702	.65813	.61425	.585	.57038	.54844
10 5	.81225	.79088	.7695	.74813	.72675	.7125	.684	.64125	.5985	.57	.55575	.53438
10 5 2½	.79194	.7711	.75026	.72942	.70858	.69469	.6669	.62522	.58354	.55575	.54186	.52102
10 7½	.79088	.77006	.74925	.72844	.70763	.69375	.666	.62438	.58275	.555	.54113	.52031
10 10	.7695	.74925	.729	.70875	.6885	.675	.648	.6075	.567	.54	.5265	.50625
10 10 5	.73103	.71179	.69255	.67331	.65408	.64125	.6156	.57713	.53865	.513	.50018	.48094
10 10 5 2½	.71275	.69399	.67524	.65648	.63772	.62522	.60021	.5627	.52518	.50018	.48767	.46891

Name _____

Class _____ Term _____ Year _____

WARM-UP DRILL RECORD

Drill A, page 17, Addition		Drill C, page 47, Multiplication, decimals		Drill F, page 68, Division		Drill H, page 86, Addition, handwritten	
Date	Strokes	Date	Strokes	Date	Strokes	Date	Strokes
Drill B, page 23, Addition, handwritten		Drill D, page 54, Addition		Drill G, page 72, Multiplication, handwritten, decimals		Drill I, page 95, Subtraction, handwritten	
Date	Strokes	Date	Strokes	Date	Strokes	Date	Strokes
		Drill E, page 61, Subtraction				Drill J, page 102, Division, handwritten	
		Date	Strokes			Date	Strokes

SPEED DRILL RECORD

Job. No.	Date	Gross Strokes	Gross Strokes a Minute	Net Strokes	Net Strokes a Minute
13					
17					
23					
27					
33					
37					
43					
47					
53					
57					



